

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:ssptayvv1621

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS	1		Web Page for STN Seminar Schedule - N. America
NEWS	2	JUL 02	LMEDLINE coverage updated
NEWS	3	JUL 02	SCISEARCH enhanced with complete author names
NEWS	4	JUL 02	CHEMCATS accession numbers revised
NEWS	5	JUL 02	CA/Caplus enhanced with utility model patents from China
NEWS	6	JUL 16	CAplus enhanced with French and German abstracts
NEWS	7	JUL 18	CA/Caplus patent coverage enhanced
NEWS	8	JUL 26	USPATFULL/USPAT2 enhanced with IPC reclassification
NEWS	9	JUL 30	USGENE now available on STN
NEWS	10	AUG 06	CAS REGISTRY enhanced with new experimental property tags
NEWS	11	AUG 06	FSTA enhanced with new thesaurus edition
NEWS	12	AUG 13	CA/Caplus enhanced with additional kind codes for granted patents
NEWS	13	AUG 20	CA/Caplus enhanced with CAS indexing in pre-1907 records
NEWS	14	AUG 27	Full-text patent databases enhanced with predefined patent family display formats from INPADOCDB
NEWS	15	AUG 27	USPATOLD now available on STN
NEWS	16	AUG 28	CAS REGISTRY enhanced with additional experimental spectral property data
NEWS	17	SEP 07	STN AnaVist, Version 2.0, now available with Derwent World Patents Index
NEWS	18	SEP 13	FORIS renamed to SOFIS
NEWS	19	SEP 13	INPADOCDB enhanced with monthly SDI frequency
NEWS	20	SEP 17	CA/Caplus enhanced with printed CA page images from 1967-1998
NEWS	21	SEP 17	CAplus coverage extended to include traditional medicine patents
NEWS	22	SEP 24	EMBASE, EMBAL, and LEMBASE reloaded with enhancements
NEWS	23	OCT 02	CA/Caplus enhanced with pre-1907 records from Chemisches Zentralblatt
NEWS	24	OCT 19	BEILSTEIN updated with new compounds
NEWS	25	NOV 15	Derwent Indian patent publication number format enhanced
NEWS	26	NOV 19	WPIX enhanced with XML display format
NEWS	27	NOV 30	ICSD reloaded with enhancements
NEWS	28	DEC 04	LINPADOCDB now available on STN

NEWS EXPRESS 19 SEPTEMBER 2007: CURRENT WINDOWS VERSION IS V8.2,
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 19 SEPTEMBER 2007.

NEWS HOURS STN Operating Hours Plus Help Desk Availability

NEWS LOGIN Welcome Banner and News Items

NEWS IPC8 For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 14:54:52 ON 05 DEC 2007

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 14:55:06 ON 05 DEC 2007

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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 4 DEC 2007 HIGHEST RN 956696-50-7

DICTIONARY FILE UPDATES: 4 DEC 2007 HIGHEST RN 956696-50-7

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

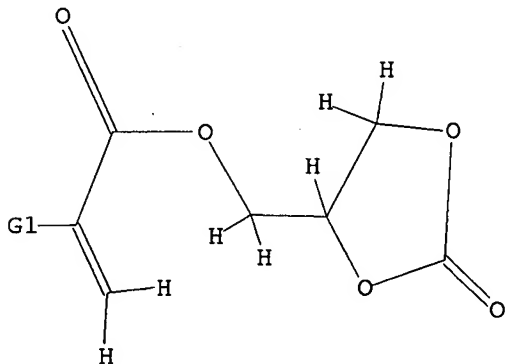
Uploading C:\Program Files\Stnexp\Queries\10580840.str

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



G1 H, Me

Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 14:55:26 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 120 TO ITERATE

100.0% PROCESSED 120 ITERATIONS 18 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 1743 TO 3057
PROJECTED ANSWERS: 106 TO 614

L2 18 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 14:55:31 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 2475 TO ITERATE

100.0% PROCESSED 2475 ITERATIONS 343 ANSWERS
SEARCH TIME: 00.00.01

L3 343 SEA SSS FUL L1

=> f casreact

L4 0 CASREACT

=> file casreact

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	182.90	183.11

FILE 'CASREACT' ENTERED AT 15:03:13 ON 05 DEC 2007
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE CONTENT:1840 - 1 Dec 2007 VOL 147 ISS 24

New CAS Information Use Policies, enter HELP USAGETERMS for details.

* CASREACT now has more than 13.8 million reactions *
* *****

Some CASREACT records are derived from the ZIC/VINITI database (1974-1999) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

Uploading C:\Program Files\Stnexp\Queries\10580840-react.str

L5 STRUCTURE UPLOADED

=> d 15

L5 HAS NO ANSWERS

L5 STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

Structure attributes must be viewed using STN Express query preparation.

=> s 15

SAMPLE SEARCH INITIATED 15:04:09 FILE 'CASREACT'

SCREENING COMPLETE - 0 REACTIONS TO VERIFY FROM 0 DOCUMENTS

100.0% DONE 0 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 0 TO 0
PROJECTED ANSWERS: 0 TO 0

L6 0 SEA SSS SAM L5 (0 REACTIONS)

=> s 15 full

FULL SEARCH INITIATED 15:04:36 FILE 'CASREACT'

SCREENING COMPLETE - 0 REACTIONS TO VERIFY FROM 0 DOCUMENTS

100.0% DONE 0 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L7 0 SEA SSS FUL L5 (0 REACTIONS)

=>

Uploading C:\Program Files\Stnexp\Queries\10580840-react-broad.str

L8 STRUCTURE UPLOADED

=> d 18

L8 HAS NO ANSWERS

L8 STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

Structure attributes must be viewed using STN Express query preparation.

=> s 18

SAMPLE SEARCH INITIATED 15:06:27 FILE 'CASREACT'

SCREENING COMPLETE - 0 REACTIONS TO VERIFY FROM 0 DOCUMENTS

100.0% DONE 0 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 0 TO 0
PROJECTED ANSWERS: 0 TO 0

L9 0 SEA SSS SAM L8 (0 REACTIONS)

=> s l8 full
FULL SEARCH INITIATED 15:06:34 FILE 'CASREACT'
SCREENING COMPLETE - 199 REACTIONS TO VERIFY FROM 14 DOCUMENTS

100.0% DONE 199 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L10 0 SEA SSS FUL L8 (0 REACTIONS)

=>
Uploading C:\Program Files\Stnexp\Queries\10580840-react-open.str

L11 STRUCTURE UPLOADED

=> d l11
L11 HAS NO ANSWERS
L11 STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

Structure attributes must be viewed using STN Express query preparation.

=> s l11
SAMPLE SEARCH INITIATED 15:09:05 FILE 'CASREACT'
SCREENING COMPLETE - 162 REACTIONS TO VERIFY FROM 9 DOCUMENTS

100.0% DONE 162 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED VERIFICATIONS: 2477 TO 4003
PROJECTED ANSWERS: 0 TO 0

L12 0 SEA SSS SAM L11 (0 REACTIONS)

=> s l11 full
FULL SEARCH INITIATED 15:09:13 FILE 'CASREACT'
SCREENING COMPLETE - 4162 REACTIONS TO VERIFY FROM 229 DOCUMENTS

100.0% DONE 4162 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L13 0 SEA SSS FUL L11 (0 REACTIONS)

=> file reg
COST IN U.S. DOLLARS SINCE FILE ENTRY TOTAL SESSION
FULL ESTIMATED COST 344.70 527.81

FILE 'REGISTRY' ENTERED AT 15:10:28 ON 05 DEC 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 4 DEC 2007 HIGHEST RN 956696-50-7
DICTIONARY FILE UPDATES: 4 DEC 2007 HIGHEST RN 956696-50-7

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

Please note that search-term pricing does apply when conducting SmartSELECT searches.

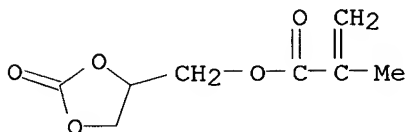
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

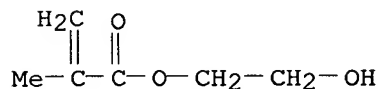
=> d l3 scan

L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with
(2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate (9CI)
MF (C8 H10 O5 . C6 H10 O3)x
CI PMS

CM 1



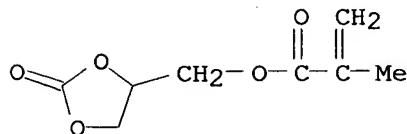
CM 2



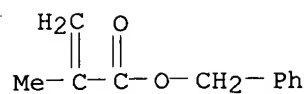
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN 2-Propenoic acid, 2-methyl-, polymer with ethenylbenzene, 2-hydroxyethyl
2-methyl-2-propenoate, (2-oxo-1,3-dioxolan-4-yl)methyl
2-methyl-2-propenoate and phenylmethyl 2-methyl-2-propenoate (9CI)
MF (C11 H12 O2 . C8 H10 O5 . C8 H8 . C6 H10 O3 . C4 H6 O2)x
CI PMS

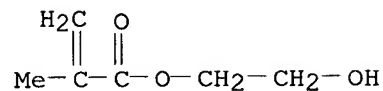
CM 1



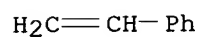
CM 2



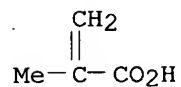
CM 3



CM 4

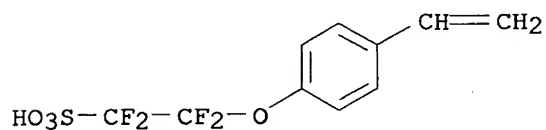


CM 5



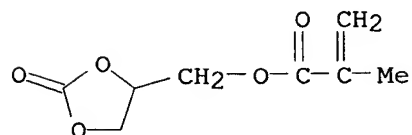
L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
 IN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
 polymer with butyl 2-propenoate and lithium 2-(4-ethenylphenoxy)-1,1,2,2-
 tetrafluoroethanesulfonate (9CI)
 MF (C10 H8 F4 O4 S . C8 H10 O5 . C7 H12 O2 . Li)x
 CI PMS

CM 1

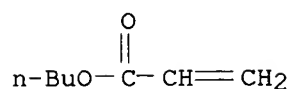


● Li

CM 2

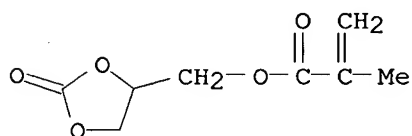


CM 3

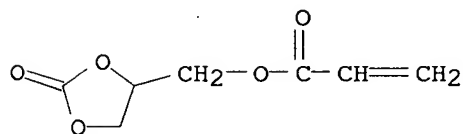


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN 2-Propenoic acid, 2-methyl-, butyl ester, polymer with butyl 2-propenoate, ethenylbenzene, (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate and (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI)
MF (C8 H14 O2 . C8 H10 O5 . C8 H8 . C7 H12 O2 . C7 H8 O5)x
CI PMS

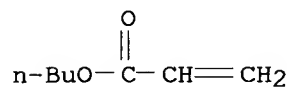
CM 1



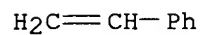
CM 2



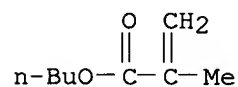
CM 3



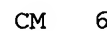
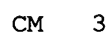
CM 4

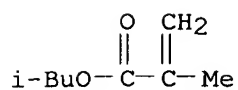


CM 5

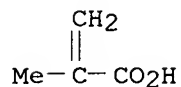


CM 1



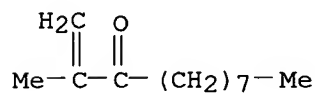


CM 7

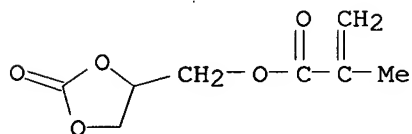


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
 IN 2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester, polymer with
 2-(dimethylamino)ethyl 2-propenoate, 2-methyl-1-undecen-3-one,
 oxiranylmethyl 2-methyl-2-propenoate and (2-oxo-1,3-dioxolan-4-yl)methyl
 2-methyl-2-propenoate (9CI)
 MF (C12 H22 O . C10 H14 O4 . C8 H10 O5 . C7 H13 N O2 . C7 H10 O3)x
 CI PMS

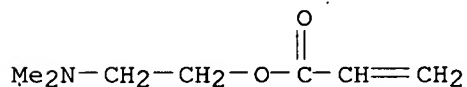
CM 1



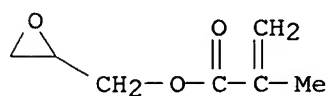
CM 2



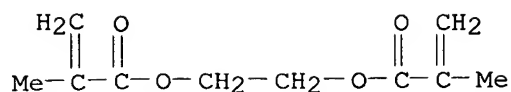
CM 3



CM 4



CM 5

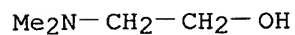


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN

IN 2-Propenoic acid, 2-methyl-, polymer with butyl 2-methyl-2-propenoate, butyl 2-propenoate, 2,2-dimethyl-1,3-propanediyl bis(2-methyl-2-propenoate), 2-hydroxypropyl 2-methyl-2-propenoate, methyl 2-methyl-2-propenoate, (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate, 2-propen-1-amine, 2-propenoic acid and 2-propenyl 2-methyl-2-propenoate, graft, compd. with 2-(dimethylamino)ethanol (9CI)

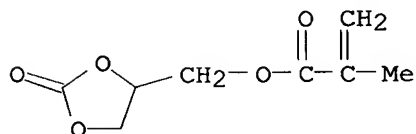
MF (C13 H20 O4 . C8 H14 O2 . C8 H10 O5 . C7 H12 O3 . C7 H12 O2 . C7 H10 O2 . C5 H8 O2 . C4 H6 O2 . C3 H7 N . C3 H4 O2)x . x C4 H11 N O

CM 1

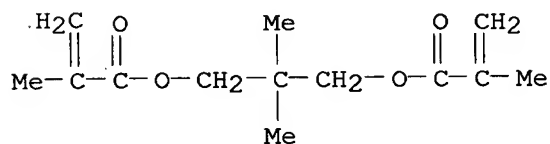


CM 2

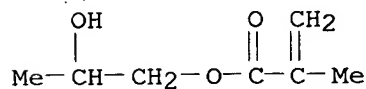
CM 3



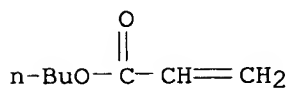
CM 4



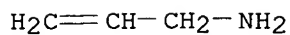
CM 5



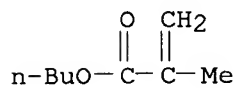
CM 6



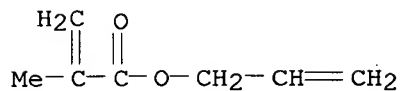
CM 7



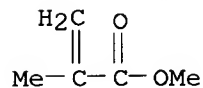
CM 8



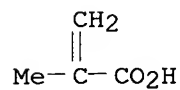
CM 9



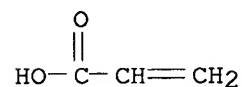
CM 10



CM 11

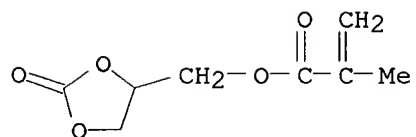


CM 12

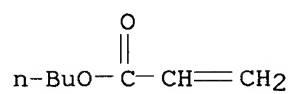


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
IN 2-Propenoic acid, 2-methyl-, polymer with butyl 2-methyl-2-propenoate,
butyl 2-propenoate, formaldehyde, methyl 2-methyl-2-propenoate,
(2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate and
1,3,5-triazine-2,4,6-triamine (9CI)
MF (C8 H14 O2 . C8 H10 O5 . C7 H12 O2 . C5 H8 O2 . C4 H6 O2 . C3 H6 N6 . C H2
O) x
CI PMS, COM

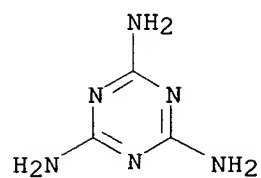
CM 1



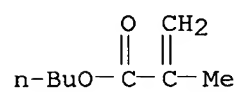
CM 2



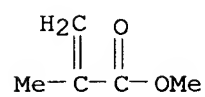
CM 3



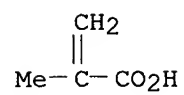
CM 4



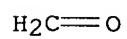
CM 5



CM 6

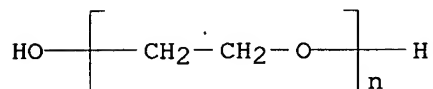


CM 7

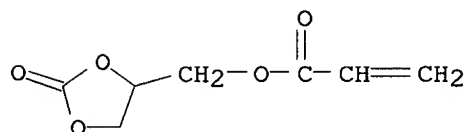


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
 IN 1,3-Benzenedicarboxylic acid, polymer with 2,2-dimethyl-1,3-propanediol, ethenylbenzene, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol, 2,5-furandione, hexahydro-1,3-isobenzofurandione, α -hydro- ω -hydroxypoly(oxy-1,2-ethanediyl) and (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate, graft (9CI)
 MF (C8 H10 O3 . C8 H8 . C8 H6 O4 . C7 H8 O5 . C6 H14 O3 . C5 H12 O2 . C4 H2 O3 . (C2 H4 O)n H2 O)x
 CI PMS, COM

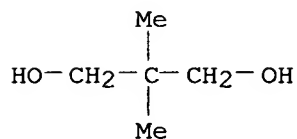
CM 1



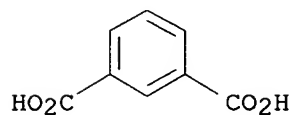
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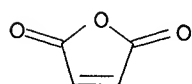
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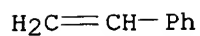
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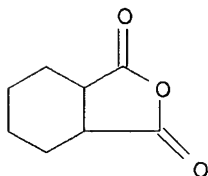
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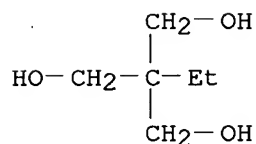
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CM 7

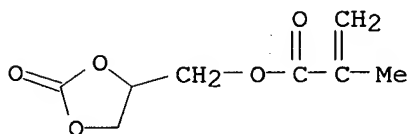


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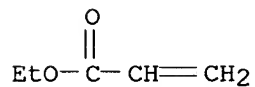


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
 IN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with ethenylbenzene,
 2-ethylhexyl 2-propenoate, ethyl 2-propenoate, 2-methylpropyl
 2-methyl-2-propenoate, (2-oxo-1,3-dioxolan-4-yl)methyl
 2-methyl-2-propenoate and 2-propenoic acid (9CI)
 MF (C11 H20 O2 . C8 H14 O2 . C8 H10 O5 . C8 H8 . C5 H8 O2 . C5 H8 O2 . C3 H4
 O2) x
 CI PMS

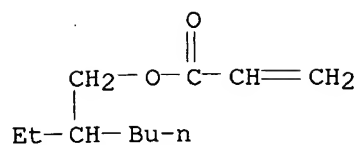
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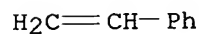
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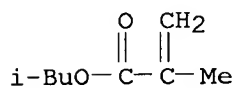
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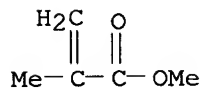
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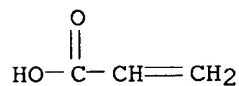
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CM 6

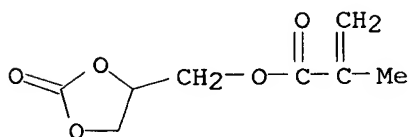


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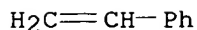


L3 343 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN
 IN 2-Propenoic acid, 2-methyl-, polymer with butyl 2-methyl-2-propenoate,
 ethenylbenzene, methyl 2-methyl-2-propenoate and (2-oxo-1,3-dioxolan-4-
 yl)methyl 2-methyl-2-propenoate (9CI)
 MF (C8 H14 O2 . C8 H10 O5 . C8 H8 . C5 H8 O2 . C4 H6 O2)x
 CI PMS

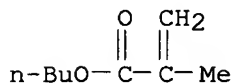
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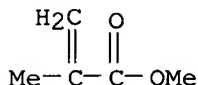
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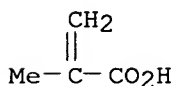
CM 3



CM 4



CM 5



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):o
'O' IS NOT VALID HERE

To display more answers, enter the number of answers you would like to see. To end the display, enter "NONE", "N", "0", or "END".
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

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Uploading C:\Program Files\Stnexp\Queries\10580840-glycerolcarbonate.str

L14 STRUCTURE UPLOADED

=> d l14

L14 HAS NO ANSWERS

L14 STR

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

Structure attributes must be viewed using STN Express query preparation.

=> s l14

SAMPLE SEARCH INITIATED 15:13:04 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 23 TO ITERATE

100.0% PROCESSED 23 ITERATIONS
SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED ITERATIONS: 173 TO 747
PROJECTED ANSWERS: 0 TO 0

L15 0 SEA SSS SAM L14

=> s l14 full

FULL SEARCH INITIATED 15:13:15 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 488 TO ITERATE

100.0% PROCESSED 488 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

L16 0 SEA SSS FUL L14

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

174.35

702.16

FILE 'CAPLUS' ENTERED AT 15:13:49 ON 05 DEC 2007

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=> s l3

L17 208 L3

=> s l3 and esterification

208 L3

102125 ESTERIFICATION

L18 9 L3 AND ESTERIFICATION

=> s l3 and transesterification

208 L3

21001 TRANSESTERIFICATION

L19 1 L3 AND TRANSESTERIFICATION

=> d l19 ibib abs

L19 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:368499 CAPLUS

DOCUMENT NUMBER: 133:18836

TITLE: Coating compositions containing modified carbamate-functional polyacrylic binders and their manufacture

INVENTOR(S): Ohrbom, Walter; St. Aubin, Donald; Rehfuss, John

PATENT ASSIGNEE(S): BASF Corporation, USA

SOURCE: PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000031195	A1	20000602	WO 1999-US25881	19991103
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6106951	A	20000822	US 1998-198472	19981124
CA 2345746	A1	20000602	CA 1999-2345746	19991103
CA 2345746	C	20070925		
EP 1141149	A1	20011010	EP 1999-972664	19991103
EP 1141149	B1	20040616		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
BR 9914106	A	20011016	BR 1999-14106	19991103
JP 2002530508	T	20020917	JP 2000-584012	19991103
ES 2224754	T3	20050301	ES 1999-972664	19991103
MX 2001PA03115	A	20011001	MX 2001-PA3115	20010326
PRIORITY APPLN. INFO.:			US 1998-198472	A 19981124
			WO 1999-US25881	W 19991103
<p>AB A process includes (A) reacting the OH groups of an acrylic resin having OH and primary carbamate groups with a compound to convert the OH groups to new groups unreactive with an aminoplast crosslinker, (B) mixing the acrylic resin reaction product with ≥ 1 aminoplast crosslinker to form a coating, (C) applying the coating on a substrate (e.g., plastic or metal), and (D) curing under substantially no formation of ether linkages in order to improve the environmental etch resistance. A cyclic carbonate methacrylate (from glycidyl methacrylate and CO₂)-2-ethylhexyl acrylate copolymer was reacted with NH₃, then mixed with a Sn catalyst and cyclohexyl isocyanate, and reacted to form a resin, which was mixed with melamine resin and additives, solvents, and catalyst, wet-on-wet coated on a black base composition-coated panel, and baked at 120° for 30 min to form a panel with good environmental etch resistance.</p>				
<p>REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT</p>				

=> s 13 and catalyst
 208 L3

783953 CATALYST
 L20 46 L3 AND CATALYST

=> s 120 and chelate
 46527 CHELATE
 L21 1 L20 AND CHELATE

=> 118 or 121
 L18 IS NOT A RECOGNIZED COMMAND
 The previous command name entered was not recognized by the system.
 For a list of commands available to you in the current file, enter
 "HELP COMMANDS" at an arrow prompt (=>).

=> s 118 or 121
L22 9 L18 OR L21

=> s 13 and metal
208 L3
1792550 METAL
L23 11 L3 AND METAL

=> s 123 or 122
L24 17 L23 OR L22

=> d 124 ibib abs hitstr 1-
YOU HAVE REQUESTED DATA FROM 17 ANSWERS - CONTINUE? Y/(N):y

L24 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:492099 CAPLUS

DOCUMENT NUMBER: 143:27027

TITLE: Catalytic esterification process for the
manufacture of glycerol carbonate methacrylate [i.e.,
(2-oxo-1,3-dioxolan-4-yl)methyl methacrylate] from
glycerol carbonate and methyl methacrylate

INVENTOR(S): Schmitt, Bardo; Caspari, Maik

PATENT ASSIGNEE(S): Roehm GmbH & Co. KG, Germany

SOURCE: Ger. Offen., 6 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10355830	A1	20050609	DE 2003-10355830	20031126
CA 2547067	A1	20050630	CA 2004-2547067	20040824
WO 2005058862	A2	20050630	WO 2004-EP9423	20040824
WO 2005058862	A3	20060504		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1689735	A2	20060816	EP 2004-764403	20040824
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR			
CN 1886395	A	20061227	CN 2004-80035157	20040824
US 2007106044	A1	20070510	US 2006-580840	20060526
PRIORITY APPLN. INFO.:			DE 2003-10355830	A 20031126
			WO 2004-EP9423	W 20040824

AB A catalytic esterification process for the manufacture of glycerol carbonate methacrylate [i.e., (2-oxo-1,3-dioxolan-4-yl)methyl methacrylate], useful as a crosslinking agent in adhesives and lacquers, consists of the reaction of glycerol carbonate and Me methacrylate in presence of a metal ion-1,3-diketone chelate catalyst (e.g., zirconium acetylacetonate).

IT 13818-44-5P, (2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate

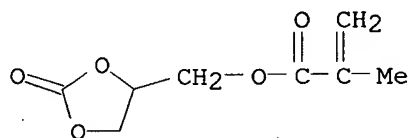
RL: IMF (Industrial manufacture); PREP (Preparation)

(catalytic esterification process for the manufacture of glycerol

carbonate methacrylate [i.e., (2-oxo-1,3-dioxolan-4-yl)methyl methacrylate] from glycerol carbonate and Me methacrylate)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



L24 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:238747 CAPLUS

DOCUMENT NUMBER: 141:277022

TITLE: Use of imidazolium transition metal halides in the synthesis of cyclic carbonates from the coupling reaction of epoxide and CO₂

AUTHOR(S): Kim, Hoon Sik; Kwon, O-Sung; Lee, Hyunjoo; Palgunadi, Jelliarko

CORPORATE SOURCE: Reaction Media Research Center, Korea Institute of Science and Technology, Seoul, 136-791, S. Korea

SOURCE: Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry (2004), 49(1), 122-123
CODEN: PSADFZ; ISSN: 1521-4648

PUBLISHER: American Chemical Society, Division of Fuel Chemistry

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:277022

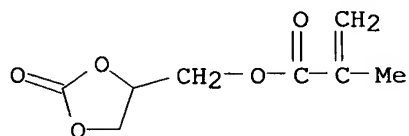
AB A series of ionic liquid-based imidazolium metal halide were effective for the coupling reaction of epoxides and CO₂. The catalytic activity increase with increasing nucleophilicity of halide ion. The substitution on the imidazolium cation showed a negligible effect on the catalytic activity.

IT 13818-44-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(use of imidazolium transition metal halides in synthesis of cyclic carbonates from coupling reaction of epoxide and CO₂)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:944733 CAPLUS

DOCUMENT NUMBER: 138:14357

TITLE: Radiation-curable epoxy (meth)acrylate resin compositions for casting polymerization

INVENTOR(S): Tokuda, Hiroyuki; Hirota, Yasunobu; Funatsu, Masanobu; Ishikawa, Hidenobu

PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002356524	A	20021213	JP 2001-162329	20010530
PRIORITY APPLN. INFO.:			JP 2001-162329	20010530

AB The compns., useful for optical components such as lenses and prisms, comprise epoxy (meth)acrylates having ≥ 2 (meth)acryloyl groups, aliphatic polyhydric alc. (meth)acrylate esters, and monofunctional (meth)acrylates and give radiation-cured products having T(max) (temperature where cured products show the maximum dynamic loss tangent, at 1 Hz) $\geq 50^\circ$, Tan δ (max) (maximum dynamic loss tangent) 0.7-2.0, $\Delta T(0.1)$ (difference in temps. between 2 points where dynamic loss tangent is 0.1) $\leq 60^\circ$, and E'(Tmax + 40°) [storage modulus at T(max) + 40°] 5.0 + 106 to 2.0 + 107 Pa.

Thus, a composition containing bisphenol A epoxy resin acrylate 41, tripropylene glycol diacrylate 32, p-cumylphenol hydroxyethyl ether acrylate 27, and a photoinitiator 3 parts was poured into space between a Cr-plated metal sheet and a transparent PET film and UV-cured to give a film showing refractive index 1.553, T(max) 56°, Tan δ (max) 1.10, $\Delta T(0.1)$ 39°, and E'(Tmax + 40°) 1.2 + 107 Pa, transmittance (400-900 nm) $\geq 85\%$, and good resistance to deformation and cracking. The composition formed a resin layer with good adhesion to an acrylic resin sheet substrate.

IT 477771-74-7P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (radiation-curable epoxy (meth)acrylate compns. suitable for casting polymerization for optical components)

RN 477771-74-7 CAPLUS

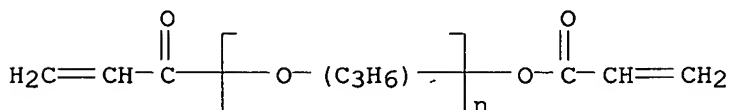
CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester, polymer with (chloromethyl)oxirane polymer with 4,4'-(1-methylethylidene)bis[phenol] 2-propenoate, (1-methyl-1,2-ethanediyl)bis[oxy(methyl-2,1-ethanediyl)] di-2-propenoate, α -(1-oxo-2-propenyl)- ω -[(1-oxo-2-propenyl)oxy]poly[oxy(methyl-1,2-ethanediyl)] and 2-phenoxyethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 52496-08-9

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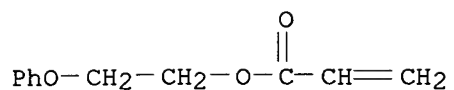
CCI IDS, PMS



CM 2

CRN 48145-04-6

CMF C11 H12 O3

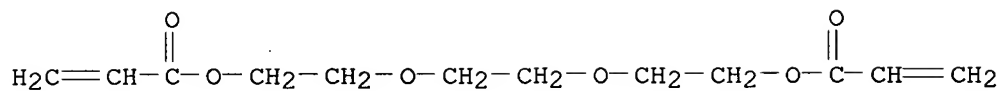


CM 3

CRN 42978-66-5

CMF C15 H24 O6

CCI IDS

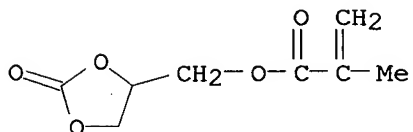


3 (D1-Me)

CM 4

CRN 13818-44-5

CMF C8 H10 O5



CM 5

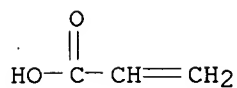
CRN 55818-57-0

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CM 6

CRN 79-10-7

CMF C3 H4 O2



CM 7

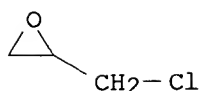
CRN 25068-38-6

CMF (C15 H16 O2 . C3 H5 Cl O) x

CCI PMS

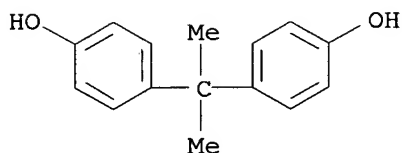
CM 8

CRN 106-89-8
CMF C3 H5 Cl O



CM 9

CRN 80-05-7
CMF C15 H16 O2



L24 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:368499 CAPLUS
DOCUMENT NUMBER: 133:18836
TITLE: Coating compositions containing modified
carbamate-functional polyacrylic binders and their
manufacture
INVENTOR(S): Ohrbom, Walter; St. Aubin, Donald; Reh fuss, John
PATENT ASSIGNEE(S): BASF Corporation, USA
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000031195	A1	20000602	WO 1999-US25881	19991103
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RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6106951	A	20000822	US 1998-198472	19981124
CA 2345746	A1	20000602	CA 1999-2345746	19991103
CA 2345746	C	20070925		
EP 1141149	A1	20011010	EP 1999-972664	19991103
EP 1141149	B1	20040616		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
BR 9914106	A	20011016	BR 1999-14106	19991103
JP 2002530508	T	20020917	JP 2000-584012	19991103
ES 2224754	T3	20050301	ES 1999-972664	19991103
MX 2001PA03115	A	20011001	MX 2001-PA3115	20010326
PRIORITY APPLN. INFO.:			US 1998-198472	A 19981124
			WO 1999-US25881	W 19991103

AB A process includes (A) reacting the OH groups of an acrylic resin having OH and primary carbamate groups with a compound to convert the OH groups to new groups unreactive with an aminoplast crosslinker, (B) mixing the acrylic resin reaction product with ≥ 1 aminoplast crosslinker to form a coating, (C) applying the coating on a substrate (e.g., plastic or metal), and (D) curing under substantially no formation of ether linkages in order to improve the environmental etch resistance. A cyclic carbonate methacrylate (from glycidyl methacrylate and CO₂)-2-ethylhexyl acrylate copolymer was reacted with NH₃, then mixed with a Sn catalyst and cyclohexyl isocyanate, and reacted to form a resin, which was mixed with melamine resin and additives, solvents, and catalyst, wet-on-wet coated on a black base composition-coated panel, and baked at 120° for 30 min to form a panel with good environmental etch resistance.

IT 226705-99-3DP, 2-Ethylhexyl methacrylate-2-ethylhexyl methacrylate-methyl methacrylate-2,3-carbonatopropyl methacrylate copolymer, reaction products with NH₃ and monoisocyanates
 271787-63-4DP, reaction products with NH₃ and monoisocyanates
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (clear topcoats containing aminoplasts and acrylic resins containing carbamate

and modified OH groups)

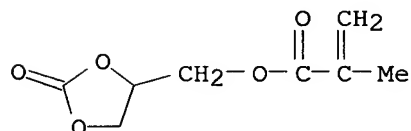
RN 226705-99-3 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethylhexyl ester, polymer with ethenylbenzene, methyl 2-methyl-2-propenoate and (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

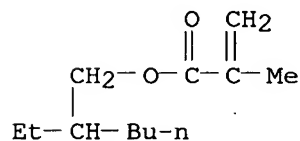
CMF C8 H10 O5



CM 2

CRN 688-84-6

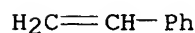
CMF C12 H22 O2



CM 3

CRN 100-42-5

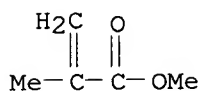
CMF C8 H8



CM 4

CRN 80-62-6

CMF C5 H8 O2



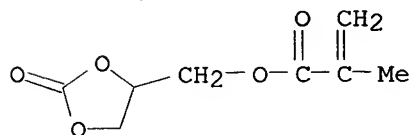
RN 271787-63-4 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
polymer with 2-ethylhexyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

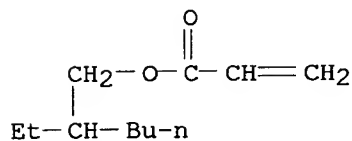
CMF C8 H10 O5



CM 2

CRN 103-11-7

CMF C11 H20 O2



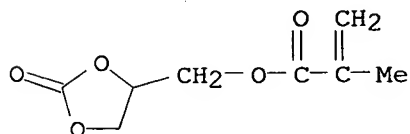
IT 13818-44-5P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)

(clear topcoats containing aminoplasts and acrylic resins containing
carbamate
and modified OH groups)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA
INDEX NAME)



REFERENCE COUNT:

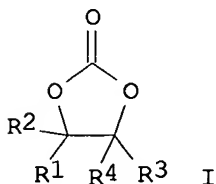
1

THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2000:32646 CAPLUS
 DOCUMENT NUMBER: 132:80930
 TITLE: Nonaqueous-electrolyte solutions containing cyclic carbonates and phosphates for secondary batteries and the batteries
 INVENTOR(S): Omi, Takehiko; Tan, Hiroaki; Mita, Satoko; Ishida, Tatsuyoshi; Ishitoku, Takeshi
 PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000012080	A	20000114	JP 1998-172841	19980619
JP 3695947	B2	20050914		
PRIORITY APPLN. INFO.:			JP 1998-172841	19980619
OTHER SOURCE(S):	MARPAT	132:80930		

GI



AB The title electrolyte solns. contain cyclic carbonate esters I (R1-R4 = H or C1-7 alkyl; C2-7 hydrocarbyl containing nonconjugated unsatd. bond, CH2OR5, or CH2OCOR6; R5,R6 = C1-7 alkyl or C2-7 hydrocarbyl containing nonconjugated unsatd. bond; ≥1 of R1-R4 contain nonconjugated unsatd. bond) and phosphoric acid esters. The batteries are equipped with anodes containing Li, Li alloys, Li-intercalating carbon materials, cathodes containing Li transition metal oxides and carbon materials, and the above electrolytes. The batteries have good fire resistance and self-extinguishing properties.

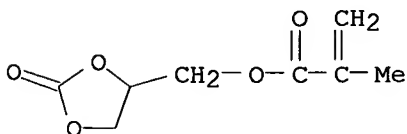
IT 13818-44-5

RL: DEV (Device component use); USES (Uses)

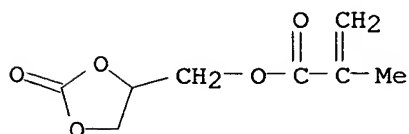
(electrolyte solns. containing cyclic carbonates and phosphates for nonaq. batteries with self-extinguishing properties)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)

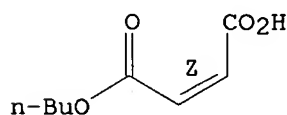


ACCESSION NUMBER: 1998:471728 CAPLUS
 DOCUMENT NUMBER: 129:190017
 TITLE: Crosslinking reaction of acrylic polymers containing cyclocarbonate groups and carboxyl groups
 AUTHOR(S): Kosaka, Norio; Matsui, Shigeki; Komazaki, Shigeru; Iwamura, Gor
 CORPORATE SOURCE: Paint Material Development, Dainippon Ink and Chemicals, Inc., Tokyo, 103, Japan
 SOURCE: DIC Technical Review (1998), 4, 55-58
 CODEN: DTREFW; ISSN: 1341-3201
 PUBLISHER: Dainippon Inki Kagaku Kogyo K.K.
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese
 AB Crosslinking reactions of acrylic polymers containing cyclocarbonate groups and carboxyl groups using quaternary ammonium salts as catalysts were investigated. The esterification reaction between the cyclocarbonate group and the carboxyl group occurs first during the curing condition, then followed by polymerization of the cyclocarbonate groups. When the carboxyl functional monomer, which possessed a higher pKa value, is introduced into the polymer, the consumption of cyclocarbonate groups during the curing conditions increased. The consumption of cyclocarbonate groups depended upon the counter anions in the quaternary ammonium salts as catalysts. From these results, the crosslinking reaction mechanism was assumed as follows: First, quaternary ammonium polymer salts are formed by an ion-exchange reaction between the carboxyl groups of the polymer and the quaternary ammonium salts. Afterwards, the ammonium polymer salts react with the cyclocarbonate groups to generate hydroxy-ester groups.
 IT 211857-20-4, Monobutyl maleate-2-oxo-1,3-dioxolan-4-ylmethyl methacrylate copolymer
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (crosslinking of acrylic polymers containing cyclocarbonate groups and carboxyl groups)
 RN 211857-20-4 CAPLUS
 CN 2-Butenedioic acid (2Z)-, monobutyl ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)
 CM 1
 CRN 13818-44-5
 CMF C8 H10 O5



CM 2
 CRN 925-21-3
 CMF C8 H12 O4

Double bond geometry as shown.

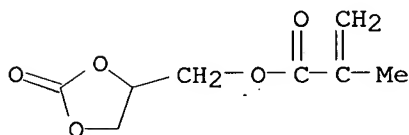


IT 211857-18-0P, Methacrylic acid-2-oxo-1,3-dioxolan-4-ylmethyl
methacrylate copolymer 211857-19-1P, Acrylic
acid-2-oxo-1,3-dioxolan-4-ylmethyl methacrylate copolymer
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN
(Synthetic preparation); PREP (Preparation); PROC (Process)
(crosslinking of acrylic polymers containing cyclocarbonate groups and
carboxyl groups)
RN 211857-18-0 CAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

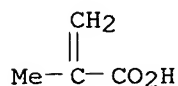
CMF C8 H10 O5



CM 2

CRN 79-41-4

CMF C4 H6 O2



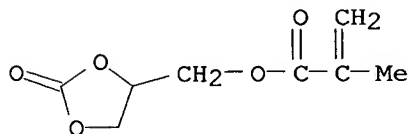
RN 211857-19-1 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
polymer with 2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

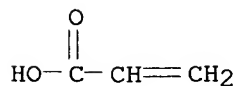
CMF C8 H10 O5



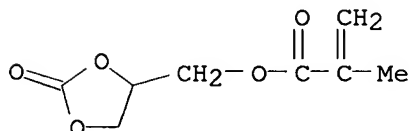
CM 2

CRN 79-10-7

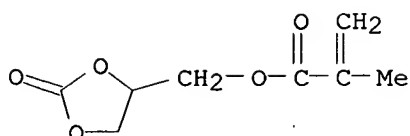
CMF C3 H4 O2



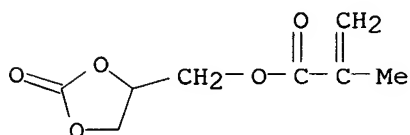
IT 109013-85-6P, Poly(2-oxo-1,3-dioxolan-4-ylmethyl methacrylate)
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (crosslinking of acrylic polymers containing cyclocarbonate groups and
 carboxyl groups)
 RN 109013-85-6 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
 homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 13818-44-5
 CMF C8 H10 O5



L24 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1998:246047 CAPLUS
 DOCUMENT NUMBER: 129:4336
 TITLE: Application of quaternary ammonium salt as catalyst in
 the reaction of glycidyl methacrylate with CO2
 AUTHOR(S): Moon, Jeong-Yeol; Yang, Jeong-Gyu; Jung, Sung-Mi;
 Park, Dae Won; Lee, Jin-Kook
 CORPORATE SOURCE: Dept. of Chem. Eng., Pusan National University, Pusan,
 609-735, S. Korea
 SOURCE: Korean Journal of Chemical Engineering (1997), 14(6),
 507-512
 CODEN: KJCHE6; ISSN: 0256-1115
 PUBLISHER: Korean Institute of Chemical Engineers
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB This study is related to the investigation of the characteristics of
 quaternary ammonium salt catalyst on the addition reaction of carbon dioxide
 and glycidyl methacrylate (GMA) to form (2-oxo-1,3-dioxolan-4-yl) Me
 methacrylate (DOMA). Among the salts tested, the ones with higher alkyl
 chain length and with more nucleophilic counter anion showed a higher
 catalytic activity. The DOMA monomer was obtained in non polar solvent
 like toluene and cyclohexane, while poly (DOMA) could be directly obtained
 in aprotic dipolar solvent such as DMF. In order to facilitate recovery
 of catalyst, polymer-immobilized quaternary ammonium salt was prepared by
 copolymn. of styrene (ST), divinylbenzene (DVB) and vinyl benzene chloride
 (VBC). The catalyst with 2 wt% of DVB, 25 wt% of VBC and quaternized
 tri-Bu amine showed the highest catalytic activity, and its activity was
 maintained even up to 10 successive exptl. runs.
 IT 13818-44-5P, (2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate
 109013-85-6P, Poly[(2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate]
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (quaternary ammonium salt as catalyst in reaction of glycidyl
 methacrylate with CO2)
 RN 13818-44-5 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA
 INDEX NAME)



RN 109013-85-6 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
 homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 13818-44-5
 CMF C8 H10 O5



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1997:579788 CAPLUS
 DOCUMENT NUMBER: 127:235757
 TITLE: Coating composition comprising a bicyclo- or
 spiro-orthoester-functional compound
 INVENTOR(S): Van Den Berg, Keimpe Jan; Hobel, Klaus; Klinkenberg,
 Huig; Noomen, Arie; Van Oorschot, Josephus Christiaan
 PATENT ASSIGNEE(S): Akzo Nobel N.V., Neth.
 SOURCE: PCT Int. Appl., 69 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9731073	A1	19970828	WO 1997-EP892	19970221
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
NL 1002427	C2	19970826	NL 1996-1002427	19960223
CA 2247126	A1	19970828	CA 1997-2247126	19970221
AU 9720930	A	19970910	AU 1997-20930	19970221
ZA 9701542	A	19980727	ZA 1997-1542	19970221
EP 882106	A1	19981209	EP 1997-906123	19970221
EP 882106	B1	20000809		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
CN 1214717	A	19990421	CN 1997-193266	19970221
CN 1128851	B	20031126		
BR 9707735	A	19990727	BR 1997-7735	19970221

EP 942051	A2	19990915	EP 1999-201141	19970221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2000506908	T	20000606	JP 1997-529818	19970221
JP 4001384	B2	20071031		
AT 195331	T	20000815	AT 1997-906123	19970221
ES 2150758	T3	20001201	ES 1997-906123	19970221
PT 882106	T	20010131	PT 1997-906123	19970221
US 6297329	B1	20011002	US 1997-804485	19970221
RU 2180674	C2	20020320	RU 1998-117558	19970221
IN 1997MA00954	A	20061006	IN 1997-MA954	19970506
TW 418241	B	20010111	TW 1997-86111273	19970806
NO 9803859	A	19981020	NO 1998-3859	19980821
AU 754919	B2	20021128	AU 2000-56513	20000906
GR 3034728	T3	20010131	GR 2000-402417	20001030
US 2002161135	A1	20021031	US 2001-935308	20010822
US 6593479	B2	20030715		

PRIORITY APPLN. INFO.:

NL 1996-1002427	A	19960223
US 1996-15878P	P	19960422
EP 1997-906123	A3	19970221
US 1997-804485	A3	19970221
WO 1997-EP892	W	19970221

AB A coating composition comprises a first compound of ≥ 1 bicyclo- or spiro-orthoester group and a second compound of ≥ 2 hydroxyl-reactive groups. The latent hydroxyl groups of the bicyclo- or spiro-orthoester groups have to be deblocked and reacted with the hydroxyl-reactive groups of the second compound to be cured. Bicyclo-orthoester compds. are made from the corresponding oxetane compound, as are polymers comprising ≥ 1 bicyclo- or spiro-orthoester group. Thus, Desmodur N 3390 was mixed with 1,4-diethyl-2,6,7-trioxabicyclo[2.2.2]octane in the presence of p-MeC₆H₄SO₃H and Bu₂Sn dilaurate in solvent and sprayed onto steel panels showing pot life >1 day and dry time 100 min.

IT 144278-93-3DP, Glycerol cyclocarbonate methacrylate-styrene copolymer, amino butyraldehyde di-Me acetal adduct, polymer with bicyclo orthoester

RL: IMF (Industrial manufacture); PREP (Preparation)
(cured binder; coating composition comprising a bicyclo- or spiro-orthoester-functional compound)

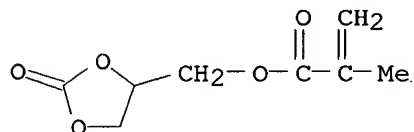
RN 144278-93-3 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

CMF C8 H10 O5



CM 2

CRN 100-42-5

CMF C8 H8

H₂C=CH-Ph

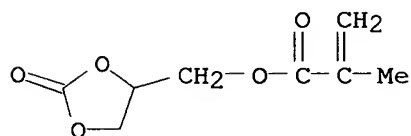
L24 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:392890 CAPLUS
DOCUMENT NUMBER: 127:36190
TITLE: Catalytic conversion of carbon dioxide using phase transfer catalysts
AUTHOR(S): Park, D. W.; Moon, J. Y.; Yang, J. G.; Lee, J. K.
CORPORATE SOURCE: Department of Chemical Engineering, Pusan National University, Pusan, 609-735, S. Korea
SOURCE: Energy Conversion and Management (1997), 38(Suppl., Proceedings of the Third International Conference on Carbon Dioxide Removal, 1996), S449-S454
CODEN: ECMADL; ISSN: 0196-8904
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Syntheses of 5-membered cyclic carbonates from CO₂ and glycidyl methacrylate or diglycidyl 1,2-cyclohexanedicarboxylate were investigated in view of the characteristics of phase-transfer catalysts, reaction mechanisms, and kinetics. Quaternary salts showed good conversion of epoxide at 1 atm of CO₂ pressure. Among the salts tested, those having a larger alkyl group and a more nucleophilic counter-anion exhibited better catalytic activity. Kinetic studies in a semi-batch reactor, through which a slow stream of CO₂ was continuously passed, showed that the reaction rate was pseudo-first order with respect to epoxide. In a batch autoclave reactor with high CO₂ pressure, however, the reaction rate showed second order kinetics. The reaction was also carried out with an insol. phase-transfer catalyst, quaternary ammonium chloride anchored to metal oxide, to facilitate the recovery of catalyst.

IT 13818-44-5P, (2-Oxo-1,3-dioxolan-4-yl)methyl methacrylate
RL: IMF (Industrial manufacture); PREP (Preparation)
(phase-transfer preparation from carbon dioxide and glycidyl methacrylate)

RN 13818-44-5 CAPLUS
CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L24 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:537505 CAPLUS
DOCUMENT NUMBER: 121:137505
TITLE: Secondary batteries with improved solid polymer electrolyte layers
INVENTOR(S): Kubota, Tadahiko; Yasunami, Shoichiro; Maekawa, Yukio
PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 29 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 06036754	A	19940210	JP 1992-178488	19920706
JP 3379541	B2	20030224		
US 5340672	A	19940823	US 1993-85173	19930702
			JP 1992-178488	A 19920706

PRIORITY APPLN. INFO.:

AB The batteries use solid polymer electrolytes layers containing an electrolyte solution of an alkali metal salt, which are prepared by applying a latex on a porous separator membrane and drying. The latex is preferably a copolymer of a 1st monomer, having 1 polymerizable ethylenic group and nonpolar side chains or nonpolar groups connected to an ester or amido side chain, 0-95, a 2nd monomer, having 1 polymerizable ethylenic group and a cyano group or a polar group connected to an ester or amido side chain, 5-95, a 3rd monomer, having ≥ 2 polymerizable ethylenic groups and >1 side chain, 1-20, and a 4th monomer, having 1 polymerizable ethylenic group and a side chain containing a crosslink-able group, 1-80 mol. %.

IT 157247-22-8P

RL: PREP (Preparation)

(latex, solid polymer electrolyte layers containing, manufacture of, for secondary lithium batteries)

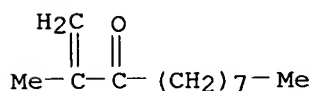
RN 157247-22-8 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,2-ethanediyl ester, polymer with 2-(dimethylamino)ethyl 2-propenoate, 2-methyl-1-undecen-3-one, oxiranylmethyl 2-methyl-2-propenoate and (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 102998-73-2

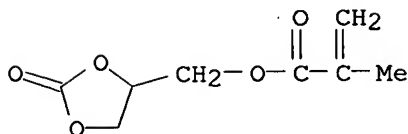
CMF C12 H22 O



CM 2

CRN 13818-44-5

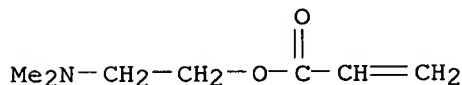
CMF C8 H10 O5



CM 3

CRN 2439-35-2

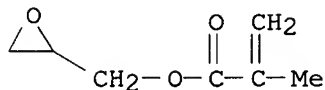
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CM 4

CRN 106-91-2

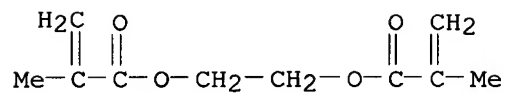
CMF C7 H10 O3



CM 5

CRN 97-90-5

CMF C10 H14 O4



L24 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:430453 CAPLUS

DOCUMENT NUMBER: 117:30453

TITLE: Polymer solid electrolytes

INVENTOR(S): Yasunami, Shoichiro; Kubota, Tadahiko; Maekawa, Yukio

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 29 pp.

CODEN: JKXXAF

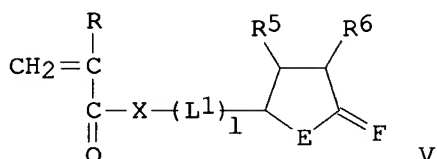
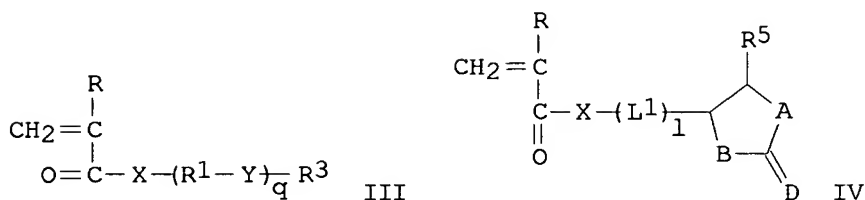
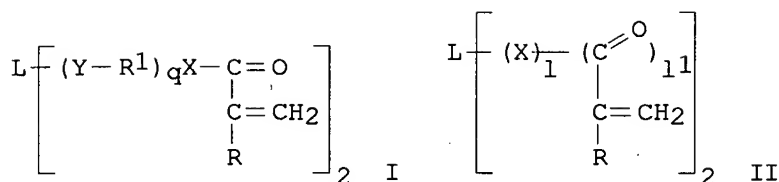
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 03177410	A	19910801	JP 1989-316116	19891205
JP 2632224	B2	19970723		
PRIORITY APPLN. INFO.: GI			JP 1989-316116	19891205



AB The electrolytes have a polymer matrix formed by impregnating a porous membrane with polyfunctional monomer I (X and Y = O or NR₂; R₂ = H or alkyl; R = H, Cl, alkyl, or cyano; R₁ = lower alkenyl; L = a joining group of valence ≥ 2; and q = 1-30), or polyfunctional monomers I and II (L and L₁ = 0 or 1), or a mixture of I and/or II and ≥ 1 monofunctional monomers III, IV, and V (R₃ = H, alkyl, alkenyl, aryl, aralkyl, COR₄, or SO₂R₄; R₄ = alkyl, alkenyl, aryl, or aralkyl; R₅, R₆ = H, lower alkyl, or lower alkoxy; A, B, D, E, F are O or S; L₁ = bivalent joining group) and polymerizing the monomer(s) in the presence of Group IA or IIA metal salts and a neutral polar solvent. The polymerization may also be carried out without the salt and solvent, which are added to the polymer later. The membrane is preferably a polyolefin. The electrolytes are useful for batteries and electrochem. devices as well as antistatic materials.

IT 142289-33-6DP, lithium complexes 142289-34-7DP, lithium complexes 142289-47-2DP, lithium complexes
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(electrolytes, with porous film supports, manufacture of)

RN 142289-33-6 CAPLUS

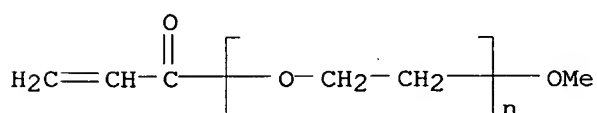
CN 2-Propenoic acid, oxybis(2,1-ethanedioxy-2,1-ethanedioyl) ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate and α-(1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanedioyl) (9CI) (CA INDEX NAME)

CM 1

CRN 32171-39-4

CMF (C2 H4 O)_n C4 H6 O2

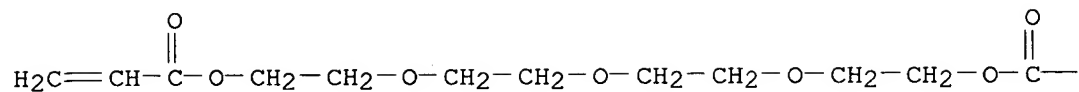
CCI PMS



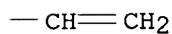
CM 2

CRN 17831-71-9
CMF C14 H22 O7

PAGE 1-A

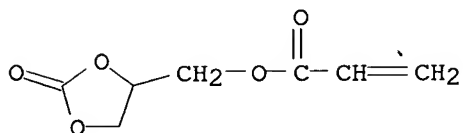


PAGE 1-B



CM 3

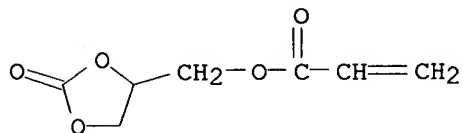
CRN 7528-90-7
CMF C7 H8 O5



RN 142289-34-7 CAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyl-2-[[2-methyl-1-oxo-2-propenyl]oxy]methyl]-1,3-propanediyl ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

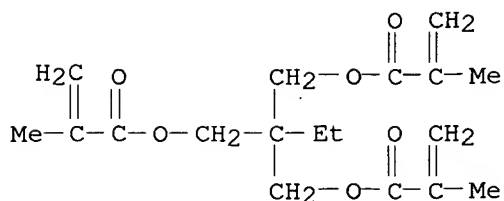
CM 1

CRN 7528-90-7
CMF C7 H8 O5



CM 2

CRN 3290-92-4
CMF C18 H26 O6



RN 142289-47-2 CAPLUS

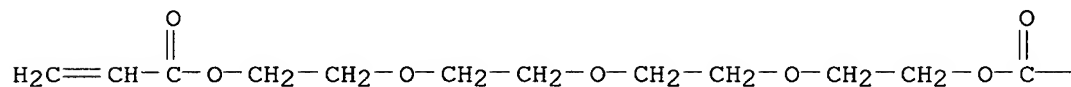
CN 2-Propenoic acid, oxybis(2,1-ethanediylloxy-2,1-ethanediyl) ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

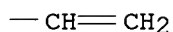
CRN 17831-71-9

CMF C14 H22 O7

PAGE 1-A



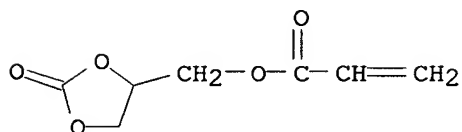
PAGE 1-B



CM 2

CRN 7528-90-7

CMF C7 H8 O5



L24 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:110082 CAPLUS

DOCUMENT NUMBER: 116:110082

TITLE: Solid polymer electrolytes for batteries

INVENTOR(S): Kubota, Tadahiko

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND DATE

APPLICATION NO.

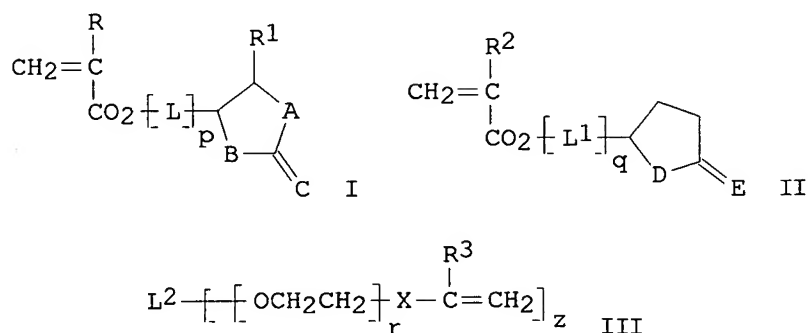
DATE

JP 03156803
 PRIORITY APPLN. INFO.:
 GI

A 19910704

JP 1989-296605
 JP 1989-296605

19891115
 19891115



AB The electrolytes have a polymer matrix formed by polymerization of monomers I and/or II (A, B, C, D, E are O or S; R, R2 are H or lower alkyl; R1 is H, lower alkyl, or lower alkoxy; L, L1 are bivalent connecting groups; and p and q = 0 or 1) in a solvent containing dissolved Group IA or IIA metal salts. Monomer III (R3 is H or lower alkyl, L2 is a connecting group of Z valence, Z = 2-4, X = -COO- or -NR4CO-, R4 is H or lower alkyl, and r > 0) may also be contained in the solution prior to polymerization

These electrolytes have high ion conductivity and good film-forming properties.

IT 31903-72-7D, complexes with lithium 139128-41-9D,
 complexes with lithium 139128-48-6D, complexes with lithium
 139128-49-7D, complexes with lithium 139175-46-5D,
 complexes with lithium

RL: USES (Uses)
 (electrolytes, solid, for batteries)

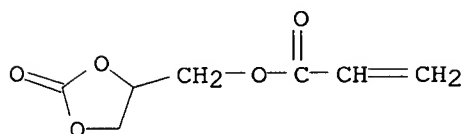
RN 31903-72-7 CAPLUS

CN 2-Propenoic acid, (2-oxo-1,3-dioxolan-4-yl)methyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 7528-90-7

CMF C7 H8 O5



RN 139128-41-9 CAPLUS

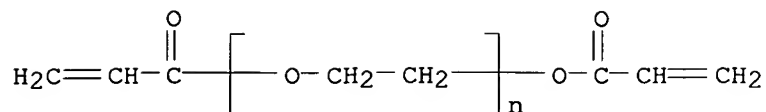
CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
 polymer with α-(1-oxo-2-propenyl)-ω-[(1-oxo-2-
 propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 26570-48-9

CMF (C2 H4 O)n C6 H6 O3

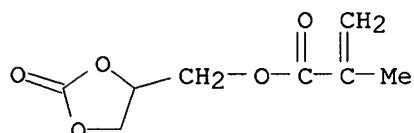
CCI PMS



CM 2

CRN 13818-44-5

CMF C8 H10 O5



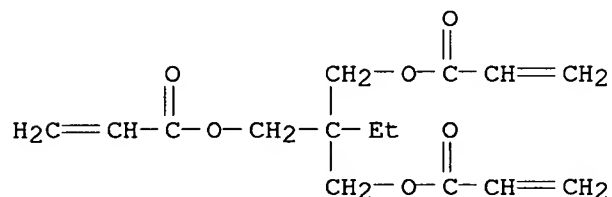
RN 139128-48-6 CAPLUS

CN 2-Propenoic acid, 2-ethyl-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 15625-89-5

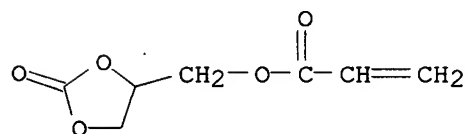
CMF C15 H20 O6



CM 2

CRN 7528-90-7

CMF C7 H8 O5

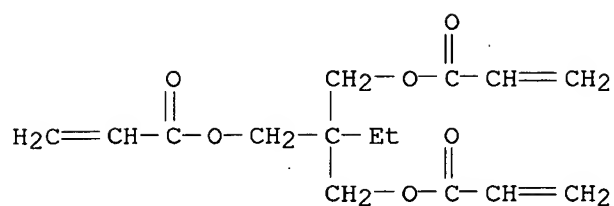


RN 139128-49-7 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester, polymer with 2-ethyl-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate (9CI) (CA INDEX NAME)

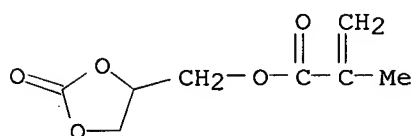
CM 1

CRN 15625-89-5
CMF C15 H20 O6



CM 2

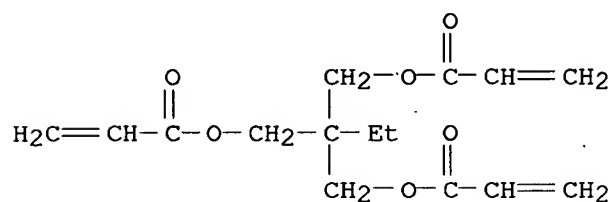
CRN 13818-44-5
CMF C8 H10 O5



RN 139175-46-5 CAPLUS
CN 2-Propenoic acid, 2-methyl-, cyclohexyl ester, polymer with
2-ethyl-2-[[[1-oxo-2-propenyl)oxy)methyl]-1,3-propanediyl di-2-propenoate
and (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

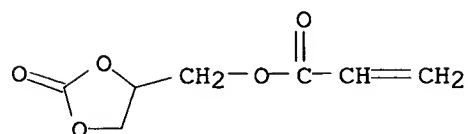
CM 1

CRN 15625-89-5
CMF C15 H20 O6



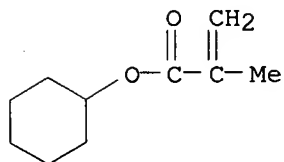
CM 2

CRN 7528-90-7
CMF C7 H8 O5



CM 3

CRN 101-43-9
CMF C10 H16 O2



L24 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1991:494511 CAPLUS
DOCUMENT NUMBER: 115:94511
TITLE: Active energy-curable resin compositions with good pigment dispersibility and adhesion
INVENTOR(S): Ichinose, Eiyu; Motomura, Masatoshi; Ishikawa, Hidenori
PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03002206	A	19910108	JP 1989-135718	19890531
JP 2725379	B2	19980311		
EP 489203	A1	19920610	EP 1990-313121	19901203
EP 489203	B1	19960911		

R: DE, FR, GB, IT, NL

PRIORITY APPLN. INFO.: JP 1989-135718 19890531

AB The title compns., useful as binders of coatings, adhesives, printing inks, and magnetic recording medium, comprise resins having cyclocarbonate groups and vinyl bonds and optionally organic solvents and/or reactive diluents. Compns. comprising resins having cyclocarbonate groups, vinyl bonds, and urethane bonds and organic solvents and/or reactive diluents are also claimed. Thus, reacting epichlorohydrin with diethanolamine in the presence of Me4NCl for 6 h and treating with NaHCO3 in DMF at 90° gave N-(glyceryl cyclocarbonate)diethanolamine, 11.0 g of which was treated with 50.1 g adipic acid-1,4-butanediol copolymer and 28.0 g 4,4'-dicyclohexylmethane diisocyanate in the presence of dibutyltin dilaurate at 70° for 6 h, and then stirred with 10 g 2-hydroxypropyl acrylate-TDI (1:1) adduct for 5 h to give a polyurethane acrylate (I). A composition containing I 50, Tipaque R 280 50, PhMe 90, and

MEK 90

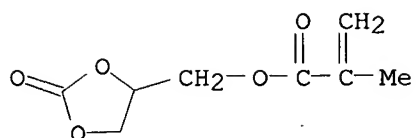
parts was applied on a PET film and a brass plate, dried at 70° for 1 h, and irradiated by electron beam to form coatings with gloss 92% and good adhesion in both cases.

IT 13818-44-5P

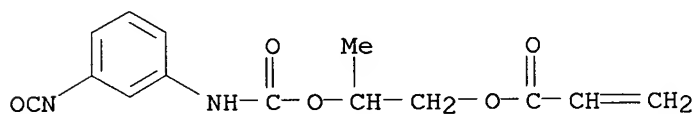
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (preparation and polymerization of)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)

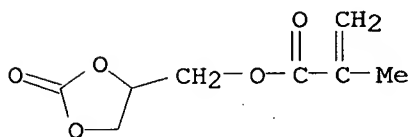


IT 135600-83-8P
 RL: PREP (Preparation)
 (preparation of, coatings, radiation-cured, with good pigment dispersibility and adhesion)
 RN 135600-83-8 CAPLUS
 CN Hexanedioic acid, polymer with 1,4-butanediol, 1,6-hexanediol, 2-[[[(3-isocyanatomethylphenyl)amino]carbonyl]oxy]propyl 2-propenoate, 1,1'-methylenebis[4-isocyanatocyclohexane] and (2-oxo-1,3-dioxolan-4-yl)methyl 2-methyl-2-propenoate, graft (9CI) (CA INDEX NAME)
 CM 1
 CRN 54554-40-4
 CMF C15 H16 N2 O5
 CCI IDS

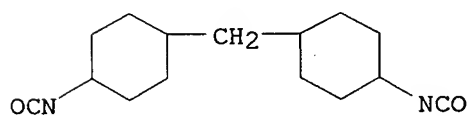


D1-Me

CM 2
 CRN 13818-44-5
 CMF C8 H10 O5



CM 3
 CRN 5124-30-1
 CMF C15 H22 N2 O2



CM 4

CRN 629-11-8
CMF C6 H14 O2

HO- (CH₂)₆-OH

CM 5

CRN 124-04-9
CMF C6 H10 O4

HO₂C- (CH₂)₄-CO₂H

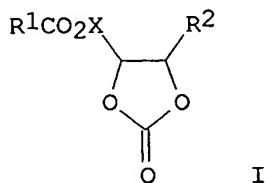
CM 6

CRN 110-63-4
CMF C4 H10 O2

HO- (CH₂)₄-OH

L24 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1991:471578 CAPLUS
DOCUMENT NUMBER: 115:71578
TITLE: Preparation of cyclic carbonate esters
INVENTOR(S): Lachowicz, Artur; Grahe, Gerwald F.
PATENT ASSIGNEE(S): Dainippon Ink Chemical Industry Co., Japan
SOURCE: Ger. Offen., 9 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3937116	A1	19910508	DE 1989-3937116	19891103
DE 3937116	C2	19920820		
PRIORITY APPLN. INFO.:			DE 1989-3937116	19891103
OTHER SOURCE(S):	MARPAT	115:71578		
GI				



AB Title compds. [I; R₁ = H, (unsatd.) (branched) (cyclic) aromatic)
(substituted) C₁-20 hydrocarbyl, ether residue containing 1-3 O atoms; R₂ = H,
(substituted) Me; X = divalent (substituted) aliphatic, cycloaliph., aromatic,

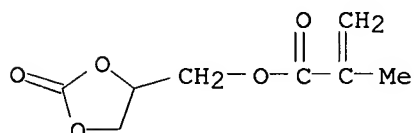
araliph., or ether residue] and dimers thereof were prepared by esterification of R_1CO_2H or HO_2CYCO_2H ($Y = C_1-20$ alkylene) with the corresponding alcs. at elevated temps. in the presence of an acid catalyst in a solvent (mixture). Thus, a mixture of $MeCH_2CO_2H$, glycerin cyclic carbonate, 4- $MeC_6H_4SO_3H$ and PhMe was refluxed with removal of H_2O to give 75.5% I ($R_1 = Et$, $X = CH_2$, $R_2 = H$). Yields varied from 25.5-83% depending on the acid used.

IT 13818-44-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



L24 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:217573 CAPLUS

DOCUMENT NUMBER: 112:217573

TITLE: Acrylic monomers containing a cyclic carbonate function. 1. Synthesis and polymerization

AUTHOR(S): Brosse, Jean Claude; Couvret, Denis; Chevalier, Sammy; Senet, Jean Pierre

CORPORATE SOURCE: Fac. Sci., Univ. Maine, Le Mans, 72017, Fr.

SOURCE: Makromolekulare Chemie, Rapid Communications (1990), 11(3), 123-8

CODEN: MCRCD4; ISSN: 0173-2803

DOCUMENT TYPE: Journal

LANGUAGE: French

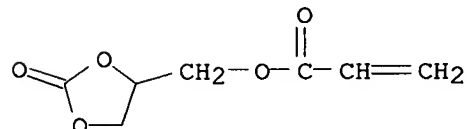
AB The title monomers were prepared by reaction of α,β,ω -triols with $COCl_2$, followed by esterification of the resulting cyclic chloroformate with acrylic acid or 2-hydroxyethyl acrylate. Homopolymer. of the cyclic carbonate-containing acrylate monomers resulted in crosslinked insol. materials which were not characterized, but copolymer. with $\leq 20\%$ 2-ethylhexyl acrylate resulted in soluble polymers. Reactivity ratios for the copolymers. were determined

IT 7528-90-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polymerization of)

RN 7528-90-7 CAPLUS

CN 2-Propenoic acid, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



L24 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1987:556951 CAPLUS

DOCUMENT NUMBER: 107:156951

TITLE: Preparation of 2-oxo-1,3-dioxolanes

INVENTOR(S): Brindoepeke, Gerhard; Marten, Manfred
 PATENT ASSIGNEE(S): Hoechst A.-G. , Fed. Rep. Ger.
 SOURCE: Ger. Offen., 8 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

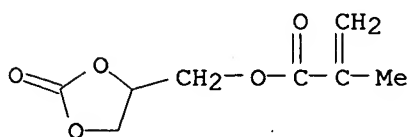
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3529263	A1	19870219	DE 1985-3529263	19850816
EP 212409	A2	19870304	EP 1986-110736	19860804
EP 212409	A3	19871021		
EP 212409	B1	19900321		
R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
AT 51225	T	19900415	AT 1986-110736	19860804
DK 8603873	A	19870217	DK 1986-3873	19860814
DK 164864	B	19920831		
DK 164864	C	19930118		
FI 8603298	A	19870217	FI 1986-3298	19860814
FI 86719	B	19920630		
FI 86719	C	19921012		
ES 2000286	A6	19880201	ES 1986-1130	19860814
NO 8603302	A	19870217	NO 1986-3302	19860815
AU 8661506	A	19870219	AU 1986-61506	19860815
AU 585385	B2	19890615		
JP 62045584	A	19870227	JP 1986-190730	19860815
JP 2565875	B2	19961218		
BR 8603901	A	19870324	BR 1986-3901	19860815
ZA 8606149	A	19870429	ZA 1986-6149	19860815
CA 1334851	C	19950321	CA 1986-516014	19860815
CN 86105205	A	19870211	CN 1986-105205	19860816
CN 1020729	B	19830519		
US 4892954	A	19900109	US 1987-111979	19871021
PRIORITY APPLN. INFO.:			DE 1985-3529263	A 19850816
			EP 1986-110736	A 19860804
			US 1986-894334	B2 19860808

AB Some or all of the oxiranyl groups in organic compds. (e.g., epoxy resins) are converted to 2-oxo-1,3-dioxolan-4-yl groups by reaction with CO₂ at 40-180° and low pressure (e.g., 1 atm) in the presence of ≥1 catalyst and, optionally, a solvent. A mixture of Beckopox EP 140 (bisphenol A diglycidyl ether; epoxide content 8.6%) 186, PhCH₂NMe₃Cl 1.8, and KI 2 parts was treated with CO₂ at 120°/1 bar for 20 h to give a product (97.8% yield) containing 2-oxo-1,3-dioxolan-4-yl groups and having epoxide content 0.3%.

IT 13818-44-5P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (preparation of, from glycidyl methacrylate and carbon dioxide, catalysts for)

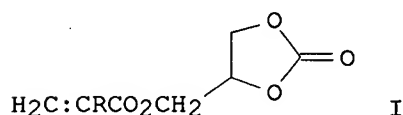
RN 13818-44-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester (CA INDEX NAME)



ACCESSION NUMBER: 1979:594102 CAPLUS
 DOCUMENT NUMBER: 91:194102
 ORIGINAL REFERENCE NO.: 91:31275a,31278a
 TITLE: Polymers containing carbonate groups
 INVENTOR(S): Schneider Kurt; Naarmann, Herbert
 PATENT ASSIGNEE(S): BASF A.-G., Fed. Rep. Ger.
 SOURCE: Eur. Pat. Appl., 13 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1088	A1	19790321	EP 1978-100781	19780830
R: BE, DE, FR, GB, NL				
PRIORITY APPLN. INFO.: GI			DE 1977-2739862	19770905



AB The title polymers are prepared by the copolymerization of compound I (R = H or Me) or hydrogen 2-oxo-1,3-dioxolan-4-ylmethyl fumarate with Et acrylate, acrylonitrile, butadiene, or a similar monomer. The polymers are useful for the preparation of moldings, coatings, adhesives, etc. Thermal cleavage of the carbonate groups gives hardenable polyepoxides. Thus, a 10:90 I (R = H)-Et acrylate mixture containing 0.1% AIBN was heated at 70° for 2 h to prepare a copolymer [71868-79-6]. The copolymer 50, toluene 50, and p-phenylenediamine 1 part were mixed, coated on metal, and heated at 100° for 30 min to prepare a clear coating which was insol. in acetone and toluene.

IT 71868-75-2P 71868-76-3P 71868-79-6P

RL: PREP (Preparation)
 (preparation of)

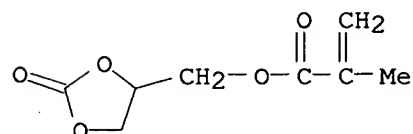
RN 71868-75-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
 polymer with 1,3-butadiene (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

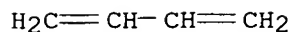
CMF C8 H10 O5



CM 2

CRN 106-99-0

CMF C4 H6



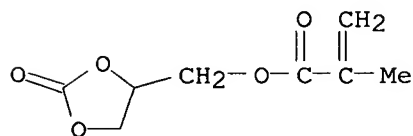
RN 71868-76-3 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (2-oxo-1,3-dioxolan-4-yl)methyl ester,
polymer with ethene (9CI) (CA INDEX NAME)

CM 1

CRN 13818-44-5

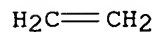
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CM 2

CRN 74-85-1

CMF C2 H4



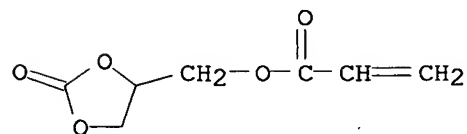
RN 71868-79-6 CAPLUS

CN 2-Propenoic acid, ethyl ester, polymer with (2-oxo-1,3-dioxolan-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 7528-90-7

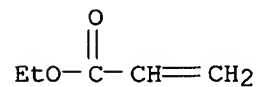
CMF C7 H8 O5



CM 2

CRN 140-88-5

CMF C5 H8 O2



EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	13638	SCHMITT.in. or CASPARI.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L2	4	"7071351"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L3	149	560/217	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L4	1	L1 and L3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L5	241687	zirconium	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L6	1025	zirconium adj acetylacetonate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L7	102836	trans-esterification or esterification or transesterification or (trans esterification)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L8	19	"4202990"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L9	99	L7 and L6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38

EAST Search History

L10	2	L1 and L9	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L11	6087	L7 and L5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L12	5	L1 and L11	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L13	148	"2979514"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38
L14	30	(2-oxo-1,3-dioxolan-4-yl)methyl methacrylate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	ON	2007/12/05 18:38

United States Patent [19]
Just et al.

[11] **Patent Number:** **4,772,666**
[45] **Date of Patent:** **Sep. 20, 1988**

[54] **CURABLE MIXTURES AND THEIR USE**

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[21] **Appl. No.:** 136,869

[22] **Filed:** Dec. 22, 1987

[30] **Foreign Application Priority Data**

Dec. 24, 1986 [DE] Fed. Rep. of Germany 3644372

[51] **Int. Cl.⁴** C08G 18/06

[52] **U.S. Cl.** 525/185; 528/45;
528/65; 528/66; 528/73

[58] **Field of Search** 525/185; 528/45, 65,
528/66, 73

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,496,684 1/1985 O'Connor et al. 524/591

Primary Examiner—Maurice J. Welsh

Attorney, Agent, or Firm—Bierman and Muserlian

[57]

ABSTRACT

Curable mixtures based on

(A) compounds containing 1,3-dioxolan-2-one groups,
groups capable of reaction with isocyanate groups
and, if appropriate, further groups,

(B) polyisocyanates and/or aminoplast resins and

(C) if appropriate, further curing compounds.

The coatings obtainable from these mixtures are distinguished above all by rapid curing and by good solvent stability and good adhesive power.

19 Claims, No Drawings

CURABLE MIXTURES AND THEIR USE

It is known to cure polymers containing hydroxyl groups, such as polyacrylic compounds, by means of unblocked or blocked polyisocyanates. However, these systems no longer cure dry fast enough for present demands. Moreover, the adhesion to substrates and the pigment absorption capacity are frequently unsatisfactory. Resistance to organic liquids, such as premium gasoline, is reached only at relatively high hydroxyl functionalities or degrees of crosslinking, i.e. relatively large quantities of relatively expensive and physiologically not harmless polyisocyanates must be used. Finally, the (poly)amino compounds, which are formed by partial hydrolysis of the polyisocyanates due to the atmospheric humidity, in most cases adversely affect the properties of the cured systems, such as weathering resistance and light stability.

European Published Application No. 1,088 discloses polymers which contain 1,3-dioxolan-2-one groups and can also be used in the coating sector. Questions of the drying rate and solvent resistance are not mentioned in this printed publication.

It was the object of the invention to provide curable mixtures which, with regard to the individual disadvantages listed above or at least with regard to their combination, achieve an improvement.

It has now been found that this object can, surprisingly, be achieved by curable mixtures based on

(A) compounds containing 1,3-dioxolan-2-one groups, groups capable of reacting with isocyanate groups and, if appropriate, further groups,

(B) polyisocyanates and/or aminoplast resins, preferably melamine resins, and

(C) if appropriate, further curing compounds.

The invention also relates to the use of these curable mixtures, in particular for the production of moldings and coatings and as a constituent in finishes or adhesives.

Component (A) of the mixtures according to the invention contains structural units derived from

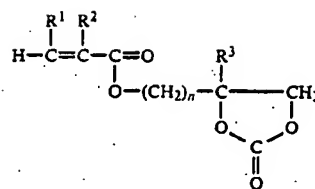
(a) an olefinically unsaturated monomer, containing 1,3-dioxolan-2-one groups, in quantities from 3 to 95% by weight, preferably 5 to 70% by weight and especially 5 to 20% by weight, relative to the total component (A),

(b) an olefinically unsaturated monomer, which is copolymerizable with (a) and contains groups, preferably OH groups, capable of reacting with isocyanate groups, in quantities from 95 to 7% by weight, preferably 95 to 30% by weight and especially 4 to 50% by weight, relative to (A), and, if appropriate,

(c) one or more other olefinically unsaturated monomers, which are copolymerizable with (a) and (b), in quantities of up to 90% by weight, preferably up to 60% by weight and especially up to 40% by weight, relative to (A).

The structural units according to (a) are preferably distributed at random along the molecule chain of (A), the term "random" being intended also to include a block distribution. The functionality of 1,3-dioxolan-2-one groups in (A) is in general 15 to 500 mmol/100 g of (A), preferably 25 to 400 mmol/100 g of (A).

Preferably, the monomers according to (a) are those of the general formula



(I)

In this formula, n is an integer from 1 to 6, preferably 1, R¹ is H, alkyl having preferably 1 to 10 and especially 1 to 6 carbon atoms and can be linear, branched or cyclic, or is COOR' (R'=H or alkyl as above), R² is, independently of R¹, H or alkyl as indicated above and R³ is H, methyl or ethyl. Examples of typical representatives thereof are (2-oxo-1,3-dioxolan-4-yl)-methyl acrylate, (2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate, (2-oxo-1,3-dioxolan-4-yl)-methyl itaconate and (2-oxo-1,3-dioxolan-4-yl)-methyl maleate.

The monomers according to (b) are preferably esters, containing hydroxyl groups, of olefinically unsaturated mono- or di-carboxylic acids having 1 to 8 and preferably 2 or 3 carbon atoms in the alcohol radical, examples of possible acids being acrylic and methacrylic acid (= (meth)acrylic acid), crotonic acid, fumaric acid, maleic acid, itaconic acid, sorbic acid or unsaturated fatty acids having 8 to 22 carbon atoms. (Meth)acrylic acid is here preferred. Examples thereof are esters of these acids with ethylene glycol, 1,2- or 1,3-propylene glycol, 1,4-butylen glycol, trimethylolpropane, glycerol and the like; moreover reaction products of these acids with terminal epoxides such as, for example, hexene oxide or dodecene oxide, as well as reaction products of these acids with glycidyl esters, preferably of saturated aliphatic α -branched mono-carboxylic acids having 8 to 14 carbon atoms, such as, for example, Cardura E 10 (glycidyl ester of "Versatic acid"). If corresponding esters of unsaturated dicarboxylic acids are used, these should contain only one C=C double bond. Hydroxyethyl (meth)acrylate is particularly preferred.

The monomers according to (c) are, for example, those indicated below, preferably at least one of these monomers being employed:

(c1) vinylaromatic hydrocarbons such as, preferably, styrene or substituted styrenes, such as α -methylstyrene, p-chlorostyrene and vinyltoluenes such as p-methylstyrene, in quantities from 0 to 70% by weight, preferably 10 to 60% by weight, relative to (A);

(c2) esters, amides or nitriles of olefinically unsaturated mono- or di-carboxylic acids in quantities from 0 to 50% by weight, preferably 5 to 40% by weight, relative to (A). The esters are here preferred. The acids are the same as those mentioned above under (b). The alcohol component in the esters contains in general 1 to 18 and preferably 1 to 13 carbon atoms. Examples of these are: methyl, ethyl, butyl, 2-ethylhexyl, lauryl or stearyl esters of (meth)acrylic acid. Fatty alcohols, cyclic alcohols, monoalkyl ethers of ethylene glycols or propylene glycols and versatic alcohols are also suitable as the alcohol component.

Amides of these acids are here to be understood especially as those of the type -CONR''R''', wherein R'' is H, alkyl having preferably 1 to 6 carbon atoms or (RO)_nX (R=a(C₁-C₆)-alkylene group which may contain hydroxyl groups, and n=1 to 10, X=H or (C₁-C₆)-alkyl) and R''', independently thereof, is H or alkyl having preferably 1 to 6 carbon atoms. (Meth)acrylic

acid amide, N-methylol-(meth)acrylamide and corresponding ethers such as N-methylol(meth)acrylamide methyl or butyl ether and dialkylaminoethyl-(meth)acrylamide may be mentioned here.

As a nitrile, (meth)acrylonitrile may be mentioned as an example;

(c3) esters, capable of addition, of saturated aliphatic monocarboxylic acids, preferably branched in the α -position, in quantities from 0 to 30% by weight, preferably 0 to 20% by weight, relative to (A); examples of these are glycidyl esters of appropriate acids having 8 to 14 carbon atoms, especially α -monoalkancarboxylic acids or α -dialkanemonocarboxylic acids, such as the so-called "Versatic acids";

(c4) olefinically unsaturated mono- or di-carboxylic acids in quantities from 0 to 30% by weight, preferably 0 to 15% by weight, relative to (A), and, in the presence of (c3), at least an equivalent quantity of this component (c4) being present; the acids in this case are above all those mentioned under (b), and also half-esters of unsaturated dicarboxylic acids, the alcohol component of which corresponds to the esters mentioned under (c2);

(c5) glycidyl esters of olefinically unsaturated mono- or di-carboxylic acids in quantities from 0 to 40% by weight, preferably 0 to 30% by weight. The comments under (c4) above again apply to the acids; a preferred representative here is glycidyl (meth)acrylate;

(c6) unsaturated esters of a saturated monocarboxylic acid, preferably branched in the α -position, in quantities from 0 to 30% by weight, preferably 0 to 20% by weight. Examples thereof are vinyl esters of corresponding acids having 2 to 20 and preferably 2 to 14 carbon atoms, such as vinyl acetate, vinyl propionate, the vinyl ester of Versatic acid and vinyl linoleate;

(c7) vinyl compounds (other than vinyl esters) such as vinyl ethers, for example methyl vinyl ether, ethyl vinyl ether or allyl glycidyl ether, and N-vinylpyrrolidone, in quantities from 0 to 30% by weight, preferably 0 to 20% by weight, relative to (A).

In special cases, structural units can also additionally be present in (A), which are derived from olefins, such as ethylene or propylene, or from monomers having urethane groups, which are obtained, for example, by reacting vinyl isocyanate with conventional blocking agents.

With respect to the monomers according to (a), (b) and (c1) to (c7) as well as those mentioned above, mixtures within the individual groups can also be used in each case. Preferably, component (A) contains, in addition to structural units (a) and (b), also those according to (c1) and/or (c2). Typical representatives of (A) have the following composition:

(2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;
 (2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate/styrene;
 (2-oxo-1,3-dioxolan-4-yl)-methyl itaconate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;
 (2-oxo-1,3-dioxolan-4-yl)-methyl maleate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;
 (2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/methyl (meth)acrylate/styrene;

(2-oxo-1,3-dioxolan-4-yl)-methyl acrylate/1,4-butanediol monoacrylate/2-ethylhexyl acrylate/styrene;

(2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate/2-hydroxypropyl methacrylate/methyl methacrylate/styrene;

(2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate/lauryl methacrylate/2-ethoxyethyl methacrylate/styrene;

(2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate/reaction product of "Cadura" E 10 and acrylic acid/styrene/methyl methacrylate/hydroxyethyl methacrylate;

(2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate/2-methoxyethyl acrylate/2-hydroxypropyl acrylate/n-butyl methacrylate/styrene; and

(2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate/n-butyl acrylate/t-butyl acrylate/methyl methacrylate/hydroxyethyl methacrylate.

The molecular weight M_w (weight average) of (A), determined by means of gel chromatography (polystyrene standard), is in general between 1,000 and 50,000, preferably between 3,000 and 30,000. If component (A) contains OH groups as the groups reactive with isocyanate groups, the OH number is in most cases 20 to 200, preferably 45 to 180 and especially 50 to 150. The acid numbers are—if monomers containing carboxyl groups are used at all—in general below 15 and preferably below 9.

Component (A) can be prepared in such a way that corresponding oligomers or polymers, which contain a sufficient number of randomly distributed glycidyl (epoxide) groups, are reacted in the known manner with CO_2 in the presence of a catalyst. All or a part of the glycidyl (epoxide) groups are thus converted into 1,3-dioxolan-2-one groups. Processes of this type are described, for example, in PCT(WO) Patent Application No. 84/03,701 and in German Patent Applications Nos. P 3,529,263.6 and P 3,600,602.5. Their disclosure, including the preferred embodiments, is incorporated herein by reference.

Preferably, however, component (A) according to the invention is prepared by copolymerization of the monomers according to (a) and (b) as well as, if appropriate, (c).

The monomers according to (a), preferably those of the formula (I), can here in turn be obtained by adding CO_2 to the corresponding glycidyl esters of unsaturated carboxylic acids, such as (meth)acrylic acid, maleic acid, fumaric acid and the like, according to the literature references quoted above.

The copolymerization is carried out in the known manner, preferably by the free-radical chain mechanism and according to the conventional methods of bulk polymerization, solution polymerization, precipitation polymerization, dispersion polymerization, emulsion polymerization or bead polymerization. Bulk polymerization, solution polymerization or emulsion polymerization and especially bulk polymerization or solution polymerization are preferred.

Examples of suitable free-radical initiators are aliphatic azo compounds such as azoisobutyronitrile, peroxides such as diacyl peroxides, for example dibenzoyl peroxide, dialkyl peroxides, such as di-tert.-butyl peroxide, or dialkyl hydroperoxides such as tert.-butyl hydroperoxide. Di-tert.-butyl peroxide is particularly preferred. Their proportion is in general 0.5 to 4.0% by weight, preferably 1 to 3% by weight, relative to the total weight of the starting components.

The initiator can be gradually metered in together with the monomers. For example in the case of bulk polymerization, a part of the initiator can also be metered into the substances already introduced.

In certain cases, it can be desirable also to add other agents (regulators) which modify the chain length, such as mercaptans, dimerized α -methylstyrene and similar compounds, to the polymerization mixture. In general, 0.1 to 4.0% by weight, preferably 1 to 2% by weight, relative to the total quantity of monomers, of these compounds are used.

If the copolymerization is carried out in bulk, a monomer which does not tend to homopolymerization, such as a maleate or the compounds mentioned under (c3), is preferably employed, the polymerizable ester being formed from the latter only during the polymerization. If the polymerization is carried out in solution, the conventional organic solvents inert under the polymerization conditions can be used for this purpose, such as, for example, halogenated hydrocarbons, ethers, such as diethyl ether, dimethyl diglycol, tetrahydrofuran or dioxane, ketones such as, for example, methyl ethyl ketone, acetone, cyclohexanone and the like, esters such as butyl acetate, ethylglycol acetate, methylglycol acetate and methoxypropyl acetate, aliphatic or aromatic hydrocarbons such as hexane, heptane, cyclohexane, benzene, xylene, toluene and aromatic solvents in the boiling range from about 150° to 180° C., (@Solvesso). The solvents can here be used individually or as a mixture, the latter especially if the solvent power of the individual solvent should be inadequate, since its polarity is under some circumstances too low.

The copolymerization can be carried out within a wide temperature range from about 20° to 250° C., preferably 60° to 180° C., with reaction times of 3 to 10 hours, preferably 5 to 8 hours. Usually, normal pressure is applied, but higher pressures can be of advantage in some cases.

Component (B) according to the invention is composed of polyisocyanates and/or of aminoplast resins, preferably melamine resins.

The polyisocyanates can here be used in the unblocked form or also in the partially or fully blocked form, the unblocked polyisocyanates being preferred.

Suitable unblocked polyisocyanates are the compounds known from polyurethane chemistry, such as aliphatic, cycloaliphatic or aromatic polyisocyanates or corresponding prepolymers.

Examples of such polyisocyanates are aliphatic trimethylene diisocyanate, tetramethylene diisocyanate, pentamethylene diisocyanate, hexamethylene diisocyanate, 1,2-propylene diisocyanate, 1,2-butylene diisocyanate, 2,3-butylene diisocyanate, 1,3-butylene diisocyanate, ethylidene diisocyanate and butylidene diisocyanate, 2,2,4-trimethylhexamethylene diisocyanate and 1,12-dodecane diisocyanate, dicycloalkylene diisocyanates such as 1,3-cyclopentane diisocyanate, 1,4-cyclopentane diisocyanate and 1,2-, 1,3- and 1,4-cyclohexane diisocyanates as well as isophorone diisocyanate (IPDI), and also diisocyanates of dimeric acids, aromatic diisocyanates such as 1,3-phenylene diisocyanate, 1,4-phenylene diisocyanate, 4,4'-diphenyl diisocyanate, 1,5-naphthalene diisocyanate and 1,4-naphthalene diisocyanate, aliphatic-aromatic diisocyanates such as 4,4'-diphenylmethane diisocyanate, 2,4- and 2,6-toluylene diisocyanates, 4,4'-tolidine diisocyanate and 1,4-xylene diisocyanate, nuclear-substituted aromatic isocyanates such as dianisidine diisocyanate, 4,4'-diphenyl

ether diisocyanate and chlorodiphenylene diisocyanate, diphenylmethane 2,4'- and/or 4,4'-diisocyanate, 3,2'- or 3,4-diisocyanato-4-methyldiphenylmethane, triisocyanates such as triphenylmethane 4,4', 4''-triisocyanate, 1,3,5-benzene triisocyanate and 2,4,6-toluene triisocyanate, and tetraisocyanates such as 4,4'-diphenyldimethyldimethane 2,2', 5,5'-tetraisocyanate, or mixtures of these compounds.

In addition to these simple polyisocyanates, those are also suitable which contain hetero atoms in the radical linking the isocyanate groups. Examples thereof are polyisocyanates which contain carbodiimide groups, allophanate groups, isocyanurate groups, urethane groups, acylated urea groups and biuret groups.

The polyisocyanates used can also be polymerized polyisocyanates, such as the dimer of toluylene diisocyanate, the isocyanurate-containing polyisocyanate of 3-isocyanatomethyl-3,3,5-trimethylcyclohexyl isocyanate and the like, or also trimerized isocyanates such as are described, for example, in German Patent Specification No. 951,168.

Finally, suitable polyisocyanates are also the known prepolymers containing terminal isocyanate groups, such as are obtainable especially by reacting the above-mentioned simple polyisocyanates, above all diisocyanates, with less than equivalent amounts of organic compounds having at least two groups reactive with isocyanate groups or of water. The reaction product of 1 mol of trimethylolpropane with 3 mol of toluylene diisocyanate or IPDI may be mentioned here as an example. The reaction product of 1 mol of water and 3 mol of hexamethylene diisocyanate, having an NCO content of 16 to 17% by weight, can also be used here. The lastmentioned reaction product of water and hexamethylene diisocyanate is here preferred. The NCO content of the reaction product applies to a 75% by weight solution in xylene/ethylene glycol acetate. Compounds in the molecular weight range from 300 to 10,000, preferably from 400 to 6,000, which contain in total at least two amino groups and/or hydroxyl groups, are also suitable for the reaction with the polyisocyanates. In this case, the corresponding polyhydroxy compounds, for example the hydroxypolyesters, hydroxypolyethers and/or acrylate resins, containing hydroxyl groups, known per se in polyurethane chemistry, are preferred. With respect to such polyhydroxy compounds, reference may be made, for example, to German Offenlegungsschrift No. 3,124,784.

In these known prepolymers, the ratio of isocyanate groups to NCO-reactive hydrogen atoms is 1.05 to 10:1, preferably 1.1 to 3:1, the hydrogen atoms preferably coming from hydroxyl groups.

In other respects, the nature and quantitative proportions of the starting materials employed in the preparation of the NCO prepolymers are preferably selected such that the NCO prepolymers have (a) a mean NCO functionality from 2 to 4, preferably from 2 to 3, and (b) a mean molecular weight from 500 to 10,000, preferably from 800 to 4,000.

Using these unblocked polyisocyanates including the above prepolymers, curing of component (A) is possible even at room temperature or slightly above. The use of catalysts is expedient in this case. For example, organic tin compounds such as dibutyl-tin dilaurate, dibutyl-tin diacetate, dibutyl-oxo-tin and in some cases even tertiary amines can be used as such catalysts. The quantity is in general between 0.001 and 10% by weight, prefera-

bly between 0.01 and 5% by weight, relative to component (A).

Partially or fully blocked polyisocyanates can also be used as the polyisocyanates. Suitable blocking agents are aliphatic, cycloaliphatic or alkylaromatic (monohydric) alcohols, for example lower aliphatic alcohols such as methyl or ethyl alcohol, the various propyl, butyl or hexyl alcohols; heptyl alcohol, octyl alcohol, nonyl alcohol or decyl alcohol, and the like, and also unsaturated alcohols such as allyl alcohol, cycloaliphatic alcohols such as cyclopentanol and cyclohexanol, alkylaromatic alcohols such as benzyl alcohol, methylbenzyl, p-methoxybenzyl and p-nitrobenzyl alcohol, and monoethers of glycols, such as ethylene glycol monoethyl ether, ethylene glycol monobutyl ether and the like. Further blocking agents are ketoximes such as methyl ethyl ketone oxime, acetone oxime as well as longer-chain oximes having preferably up to 10 carbon atoms, such as methyl n-amyl ketoxime and dibutyl ketoxime, and also cyclohexanone oxime, CH₃acidic compounds such as alkyl malonates, acetoacetates and cyanoacetates, having in each case 1 to 4 carbon atoms in the ester group, NH-acidic compounds such as caprolactam, and aminoalcohols such as diethylethanolamine. Phenol which is known as a blocking agent can be employed in those cases where the reaction product is used for the production of solvent-containing surface coatings.

Of course, mixtures of the various types of polyisocyanates, explained above, can also be employed. When these (partially) blocked polyisocyanates are used, higher curing temperatures from 40° to 150° C. are necessary in most cases.

The quantity of polyisocyanate depends on the quantity of groups, reactive therewith, in component (A), in particular the OH number. Advantageously, the polyisocyanate is employed in equivalent quantities, even though an excess of polyisocyanate is not harmful in most cases. The excess polyisocyanate (and also part of that present in stoichiometric quantities) is admittedly hydrolyzed by the atmospheric humidity, (poly)amino compounds being formed which adversely affect the weathering resistance and light stability. However, if they are present, they do not interfere, since they are intercepted by the 1,3-dioxolan-2-one groups of component (A) even at low temperatures with formation of urethane groups and chain extension or further crosslinking. These urethane groups promote, inter alia, the adhesion to substrates, and they are thus desired groupings so that, according to the invention, the otherwise harmful (poly)amino compounds show a positive effect. For these reasons, the use of a polyisocyanate excess ("overcrosslinking") is, also according to the invention, not a disadvantage for the properties of the cured product, but even beneficial within certain limits, since the polyamino compounds formed by hydrolysis are converted into advantageous groups. This applies at least for as long as the "intercepting capacity" of component (A) is sufficient.

Aminoplast resins, preferably melamine resins, can also be used according to the invention as component (B), provided that they are compatible with component (A). The aminoplast resins employed according to the invention are preferably soluble in organic solvents. Examples which may be mentioned here of such aminoplast resins are amine/aldehyde resins, i.e. condensation products of aldehydes with melamine, which may subsequently be etherified with alcohols (melamine resins),

urea (urea resins), acetoguanamine (acetoguanamine resins) or similar compounds (urethane resins, etc.). Preferred aldehyde condensation products of melamine are above all the melamine-methylol alkyl ethers (alkyl being especially methyl, n- and i-butyl), such as hexamethoxymethylmelamine, hexakis-(methoxymethyl)melamine, ethoxymethoxymethylmelamine, methylolmelamine methylated 6 times, monomethylolpentamethoxymethylenemelamine, dimethylol-tetramethoxymethylenemelamine, trimethylol-trimethoxymethylenemelamine and the like. Condensation products of formaldehyde and melamine should also be mentioned here, about 4 to 6 mol of formaldehyde per mol of melamine being reacted and the condensation products then being etherified with n-butanol, isobutanol or methanol. Such aminoplast resins have been described, for example, in Swiss Patent Specification No. 480,380, German Auslegeschrift No. 1,127,083 and in Wagner/Sarx, Lackkunstharze [Surface coating resins], 1971, pages 61-80. These literature references are incorporated herein by reference. Curing with component (B) can be accelerated by catalysts such as p-toluenesulfonic acid.

As the additional curing agents corresponding to component (C), if any, polycarboxylic acids and/or their anhydrides as well as phenolic resins can be employed according to the invention, it being possible for the curing to be catalyzed, for example, by p-toluenesulfonic acid in the case of the phenolic resins.

As the additional constituents (D) which may be present in the curable mixture according to the invention, the usual surface coating additives may be mentioned here—depending on the particular application—such as pigments (iron oxides, lead oxides, lead silicates, titanium dioxide, barium sulfate, zinc oxide, zinc sulfide, phthalocyanine complexes and the like), pigment pastes, antioxidants, (UV) stabilizers, leveling agents or thickeners, antifoams and/or wetting agents, reactive diluents, fillers (talc, mica, kaolin, chalk, quartz powder, asbestos powder, slate powder, various silicas, silicates and the like), catalysts, inert solvents or diluents (inter alia those mentioned under the preparation of component A) and the like. These additives can, if appropriate, be added to the mixture only just before processing.

To prepare the curable mixtures according to the invention, components (A) and (B) as well as, if appropriate, additionally (C) are mixed. In the case of components of low viscosity, this can be done in bulk; the mixture being heated to higher temperatures if necessary. Products of higher viscosity are dissolved in inert organic solvents before mixing. The inert solvents used here can in principle be the same as those also employed in the preparation of component (A) (see above), that is to say, for example, alcohols (in the case of aminoplast resins as component (B)), ketones, esters, ethers, hydrocarbons and the like.

Curing of the coatings after application to the substrate can take place in the conventional manner, for example at room temperature within a few minutes up to several days, depending on the desired degree of curing, or, after flashing off at room temperature, at temperatures from 30° to 160° C., preferably 40° to 140° C., for a correspondingly shorter time.

The cured products obtainable by means of the mixtures according to the invention are distinguished above all by the following properties:

good solvent resistance, even though only relatively small quantities of polyisocyanate are used (relatively low OH numbers);

good light stability;

good adhesive power on substrates;

low curing temperatures; frequently even room temperature or only slightly above;

high values of the (pendulum) hardness even after only short curing times.

Because of their advantageous properties, the mixtures according to the invention have versatile industrial uses, for example for the production of moldings (casting resins) or for the production of coatings. Because of the good adhesion properties and the good solvent resistance and weathering resistance, especially facings and linings of appliances, which are used in the chemical industry or outdoors, or which come into contact with motor fuels, are also possible here.

Furthermore, the mixtures according to the invention can be used as constituents of adhesives, putties and especially as constituents of paints and coating agents for coating industrial articles, domestic appliances, furniture and in the building trade and especially in the vehicle industry, for example as primers and/or topcoats, in integrated plastic/metal coatings and as vehicle refinishes.

In addition to the mixtures according to the invention (as binders), such surface coatings contain the additives conventional in the coating sector, such as pigments, pigment pastes, antioxidants, surfactants, solvents, leveling agents and wetting agents, reactive diluents, fillers and the like.

The invention is explained in more detail by the examples which follow. In these, all quantitative data relate to parts by weight, unless otherwise stated. The molecular weight M_w was determined by gel permeation chromatography (polystyrene standard).

OHN means OH number and AN means acid number.

EXAMPLES

(a) Preparation of component (A)

The monomers listed in Table 1 which follows were copolymerized in methoxypropyl acetate (=MPA). For this purpose, the solvent was initially introduced into a glass flask, the reaction vessel was evacuated and a pressure balance was established by means of nitrogen. Immediately before the start of the experiment, the initiator (ditert.-butyl peroxide) was added to the monomer mixture. The solvent was then heated to 140° C. and the particular monomer mixture was metered in within 6 hours. After the end of metering, the reaction was allowed to continue for a time at 140° C., and the solution was then adjusted in each case with MPA to 60% solids.

TABLE 1

	Example 1	Example 2	Example 3	Example 4
Solvent (MPA)	66.66	66.66	66.66	66.66
Styrene	37.63	37.63	37.63	27.13
Methyl methacrylate	27.13	25.73	28.53	37.63
Hydroxyethyl acrylate	25.94	22.69	29.19	25.94
Cyclic carbonate*	9.30	13.95	4.65	9.30
Initiator	2.00	2.00	2.0	2.0

* (2-oxo-1,3-dioxolan-4-yl)-methyl methacrylate

Table 2 gives the values relating to the OH numbers, acid number and M_w of the polymers obtained (=component (A)) and the solids content of the solution.

TABLE 2

	Example 1	Example 2	Example 3	Example 4
OHN	114	102	124	113
AN	3.9	3.6	3.9	3.5
MW	11535	13023	11356	12371
Solids content	60	60	60	60

(b) Preparation of the mixture according to the invention and coating

(1) Component (B)=polyisocyanate

Component (A) according to Example 3, dissolved in MPA, was mixed at room temperature with the polyisocyanate and also with further additives according to Table 3 which follows.

For purposes of comparison, an acrylic resin containing hydroxyl groups but no cyclic carbonate groups was employed as component (A) in comparison experiment 1.

The polymer solutions were adjusted with butylacetate to a viscosity (DIN 53211/20° C. of 50 seconds and then applied to glass plates in a wet layer thickness of 100 μ m. The test results are given in Table 4.

TABLE 3

	According to the invention	Comparison experiment 1
Acrylic resin (60% solution) (component (A))	82.0 ¹	82.0 ²
Polyisocyanate ³ (component (B))	33.0	33.0
Hydroxyphenylbenzotriazole-type UV absorber (® Tinuvin 900, 10% in xylene)	5.0	5.0
Diethanolamine (100%)	0.3	0.3
Dibutyl-tin dilaurate (1% in xylene)	0.2	0.2
Butyl acetate	6.0	6.0
® Solvesso 100	2.0	2.0
Xylene	3.0	3.0

¹ component (A) according to Example 3

² hydroxy-functional acrylic resin; MW: 12,500, OH number: 140 (® Macranyl SM 510n)

³ reaction product of hexamethylene diisocyanate and water; 75% in ethylene glycol monoethyl ether-acetate (® Desmodur N).

TABLE 4

(Test results)	According to the invention	Comparison experiment 1
Air drying (room temperature)		
Dry to the touch	12	17
Dried tack-free	1 h	3 h
Pendulum hardness		
2 h	20"	sticks
4 h	28"	sticks
6 h	34"	17"
16 h	121"	41"
24 h	141"	60"
48 h	187"	121"
Gasoline resistance		
16 h	5'	immediately
24 h	7'	1'
72 h	> 30'	10'
Forced drying at 60° C., 45 minutes		
Pendulum hardness		
2 h	138"	45"

TABLE 4-continued

(Test results)		
	According to the invention	Comparison experiment 1
24 h Gasoline resistance	190"	150"
2 h	11'	5'
24 h	20'	11'

Dry to the touch: according to DIN 53150 (drying stage 1)

Dried tack-free: according to DIN 53150 (drying stage 2)

Pendulum hardness: according to DIN 53157

Gasoline resistance: according to DIN 53168

(2) Component (B) = melamine resin

The procedure followed was analogous to that in (b1) but with the difference that melamine resin was used as component (B). The acrylic resins according to Examples 2, 3 and 4 were used as component (A).

For comparison purposes, a paint based on acrylic resin containing hydroxyl groups/melamine resin was used, the acrylic resin containing no cyclic carbonate groups (\rightarrow paint 4).

Table 5 below shows the composition of the respective paints.

The polymer solutions were adjusted with butyl acetate to a viscosity of 26 seconds (DIN 53211/23° C.) and then applied to glass plates in a wet layer thickness of 100 μ m. The test results are given in Table 6.

TABLE 5

	Paint 1	Paint 2	Paint 3	Paint 4*
Acrylic resin (component (A))	62.2 ¹	62.2 ²	62.2 ³	52.5 ⁴
Unplasticized methyl-etherified melamine/formaldehyde resin (70% in i-butanol; ® Maprenal MF 927) (= component b)				
Butyl acetate	13.9	13.9	13.9	22.6
Hydroxyphenyltriazole-type UV absorber (® Tinuvin 900; 10% in xylene)	0.5	0.5	0.5	0.5

*Comparison sample

¹Component (A) corresponding to Example 2;²Component (A) corresponding to Example 3;³Component (A) corresponding to Example 4;

⁴Mixture of 28.7 parts of a hydroxy-functional acrylic resin having a viscosity of 800 to 1400 mPas (according to DIN 53015/20° C.; diluted with xylene to 50% - ® Synthacryl SC 303; 65% in 3:1 xylene/butanol) and 24.8 parts of a hydroxy-functional acrylic resin having a viscosity of 200-300 mPas (® Synthacryl SC 370; 75% in ® Solvesso 100). Solid resin content = 37.2 parts.

solid resin content = 37.32

TABLE 6

(Test results)				
	Paint 1 (70:30)	Paint 2 (70:30)	Paint 3 (70:30)	Paint 4* (35:35:30)
(DIN 53157)				
30°/80° C. curing	96"	94"	86"	tack-free
30°/140° C. conditions	213"	197"	209"	169"
Premium gasoline test (DIN 53168)				
30°/80° C.	about 1 min	about 1 min	about 1 min	about 30 sec
30°/140° C.	30 min	> 60 min	45 min	3 min
Water test (drops on top) (DIN 53168**)				

TABLE 6-continued

(Test results)				
	Paint 1 (70:30)	Paint 2 (70:30)	Paint 3 (70:30)	Paint 4* (35:35:30)
30°/80° C.	white tarnish	white tarnish	white tarnish	white
30°/140° C.	after 30 min fine blisters formed after 3 hours	after 30 min fine blisters formed after 3 hours	after 30 min fine blisters formed after 3 hours	after 20 min fine blisters formed after 2-hour

*Comparison sample

**Interim assessment after the time according to this Table 6.

We claim:

1. A curable mixture based on

(A) compounds containing 1,3-dioxolan-2-one groups, groups capable of reacting with isocyanate groups and, if appropriate, further groups, and

(B) polyisocyanates.

2. A curable mixture as claimed in claim 1, wherein the groups capable of reaction with isocyanate groups are OH groups.

3. A curable mixture as claimed in claim 1, wherein the compounds (A) comprise structural units derived from

(a) an olefinically unsaturated monomer, containing 1,3-dioxolan-2-one groups, in a quantity from 3 to 95% by weight relative to (A),

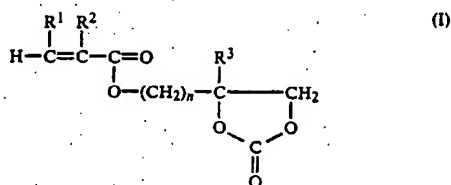
(b) an olefinically unsaturated monomer, which is copolymerizable with (a) and contains OH groups, in quantities from 95 to 7% by weight relative to (A), and, if appropriate,

(c) one or more olefinically unsaturated monomers other than (a) and (b), which are copolymerizable with (a) and (b), in quantities of up to 90% by weight relative to (A).

4. A curable mixture as claimed in claim 3, wherein the proportion of (a) is 5 to 70% by weight and the proportion of (b) is 95 to 30% by weight.

5. A curable mixture as claimed in claim 1, wherein the 1,3-dioxolan-2-one groups are randomly distributed along the molecule chain of (A).

6. A curable mixture as claimed in claim 3, wherein the monomers according to (a) are of the formula



in which n is an integer from 1 to 6, R¹ is H, alkyl or COOR' (R' = H or alkyl), R² is, independently of R¹, H or alkyl and R³ is H, methyl or ethyl.

7. A curable mixture as claimed in claim 3, wherein the monomer according to (b) is an ester, containing hydroxyl groups, of an olefinically unsaturated mono- or dicarboxylic acid having 1 to 8 carbon atoms in the alcohol radical.

8. A curable mixture as claimed in claim 3, wherein the monomer according to (c) is at least one monomer from the group comprising: (c1) vinylaromatic hydro-

13

carbons, (c2) esters, amides or nitriles of olefinically unsaturated mono- or di-carboxylic acids, (c3) esters, capable of addition, of saturated monocarboxylic acids, (c4) olefinically unsaturated mono- or di-carboxylic acids, and, in the presence of (c3), at least an equivalent quantity of these components (c4) being present, (c5) glycidyl esters of olefinically unsaturated mono- or dicarboxylic acids and (c6) unsaturated esters of saturated monocarboxylic acids.

9. A curable mixture as claimed in claim 8, wherein the compounds (A) also contain, in addition to the structural units according to (a) and (b), those corresponding to (c1) and/or (c2).

10. A curable mixture as claimed in claim 1, wherein compound (A) is one of the following:

(2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;

(2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate/styrene;

(2-oxo-1,3-dioxolan-4-yl)-methyl itaconate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;

14

(2-oxo-1,3-dioxolan-4-yl)-methyl maleate/2-hydroxyethyl (meth)acrylate/butyl (meth)acrylate/ethylhexyl (meth)acrylate;

(2-oxo-1,3-dioxolan-4-yl)-methyl (meth)acrylate/2-hydroxyethyl (meth)acrylate/methyl (meth)acrylate/styrene.

11. A curable mixture as claimed in claim 1, wherein the compounds (A) have molecular weights \bar{M}_w from 1,000 to 50,000 and OH numbers from 20 to 200.

12. A curable mixture as claimed in claim 1, wherein the reaction product of 3 mol of hexamethylene diisocyanate and 1 mol of water is used as the polyisocyanate.

13. A curable mixture as claimed in claim 1, which contains, in place of polyisocyanates, aminoplast resins or mixtures thereof with polyisocyanates as component (B).

14. A curable mixture as claimed in claim 13, wherein the aminoplast resin is a melamine resin.

15. A curable mixture as claimed in claim 1, which also contains curing compounds (C) in addition.

16. A curable mixture as claimed in claim 15, wherein the curing compounds (C) are phenolic resins.

17. The use of a mixture as claimed in claim 1 for the production of moldings or coatings.

18. The use of a mixture as claimed in claim 1 as a constituent in coating agents or adhesives.

19. The use as claimed in claim 18, wherein the coating agents are vehicle topcoats or vehicle refinishes.

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